ORDER NO. AD8903044C8

Service Manual

Compact Disc Player

SL-PJ26

COMPACT disc DIGITAL AUDIO

DIGITAL

Color

(K)...Black Type

Area

Country Code	Area	Color
(E)	Continental Europe.	(K)
(GN)	New Zealand.	(K)
(GC)	Third Region.	(K)

SPECIFICATIONS

■ Audio

No. of channels	2 (left and right, stereo)
Frequency response	2 – 20,000 Hz ± 0.5 dB
Output voltage	2 V (at 0 dB)
Dynamic range	96 dB
S/N ratio	96 dB
Total harmonic distortion	0.005% (1 kHz, 0 dB)
Harmonic distortion	0.003% (1 kHz, 0 dB)
Wow and flutter	Below measurable limit
DA converter	2DAC, 18-bit
Output impedance	Approx. 600Ω
Load impedance	More than 10 kΩ

■ Pickup

Wavelength	780 nm

■ General

Power supply	
For New Zealand:	AC 50/60 Hz, 240 V
For Continental Europe:	AC 50/60 Hz, 220 V
For others:	AC 50/60 Hz, 110 V/127 V/220 V/240 V
Power consumption	11 W
Dimensions (W × H × D)	
For Continental Europe:	360 × 96 × 291 mm
For others:	360 × 96 × 280 mm
Weight	3.4 kg

Note

Specifications are subject to change without notice for further improvement.
Weight and dimensions are approximate.

Technics

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

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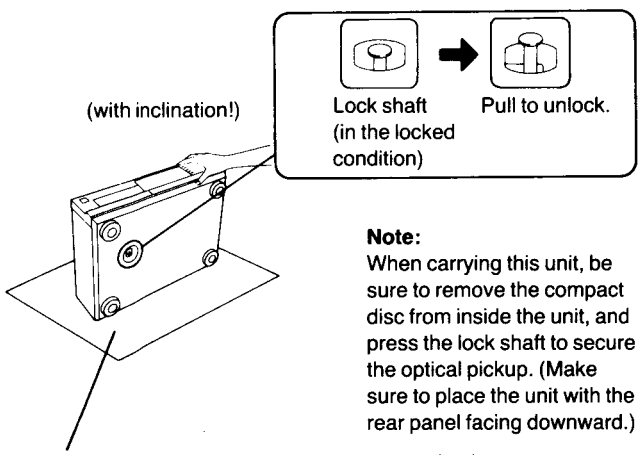
■ PLACEMENT

Before placement

The optical pickup is secured to prevent damage during transport. Be sure to release it before use.


(with inclination!)
Lock shaft (in the locked condition)
Pull to unlock.
Soft cloth or similar material (to prevent scratches)

Note:
When carrying this unit, be sure to remove the compact disc from inside the unit, and press the lock shaft to secure the optical pickup. (Make sure to place the unit with the rear panel facing downward.)

Notes of placement

■ **Place on a flat, level surface so that the front-rear inclination does not exceed 5°.**

■ **Avoid places such as the following:**

- Near any equipment or device that generates strong magnetism.
- On any heat-generating equipment or device, or in any place where the temperature is high (40°C or higher).
- Extremely cold places (5°C or below).
- Near a tuner or TV (It may cause noise in the broadcast, or disturbance of the TV picture.).

■ **Do not place heavy objects, other than system components, on top of the unit.**

■ **When carrying or storing the unit, handle it with care so it is not subjected to any strong bumps.**
Always remove the disc before storing the unit for any period of time.

■ **To avoid problems due to vibration.**

- Do not place a book or similar object under this unit.
- Do not route the connection cables (of this or other units) across the operation panel, across the top, or under the unit.

■ ACCESSORIES

- AC power supply cord 1
  (SFDAC05E03 (E) / SJA173 (GN) / RJA0004 (GC))
- Stereo connection cable 1
  (SJP2249-3)
- L-type cable 2
  (SJP2257T)

■PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780nM
Maximum output radiation power from pick up: 100μW/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

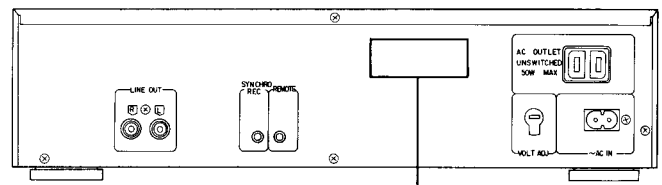
ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

Wellenlänge: 780nM
Maximale strahlungsleistung der lasereinheit: 100μW/VDE

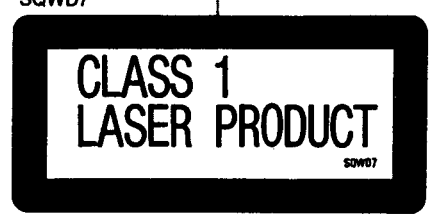
Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinheit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.

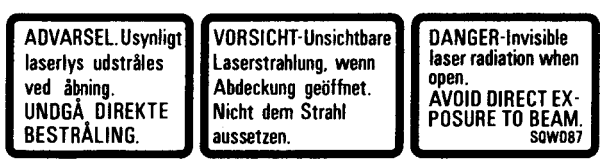
ADVARSEL: I dette a apparat anvendes laser.



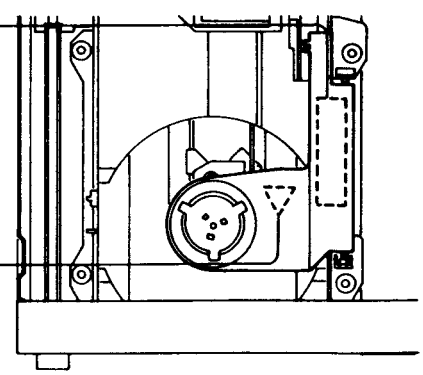
SQWD7



SQWD87


ADVARSEL. Usynligt laserlys udstråles ved åbning. UNDGÅ DIREKTE BESTRÅLING.
VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen.
DANGER-Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
SQWD87

Obs:
Apparaten innehåller laser
Komponent av höger laserklass
än klass 1.

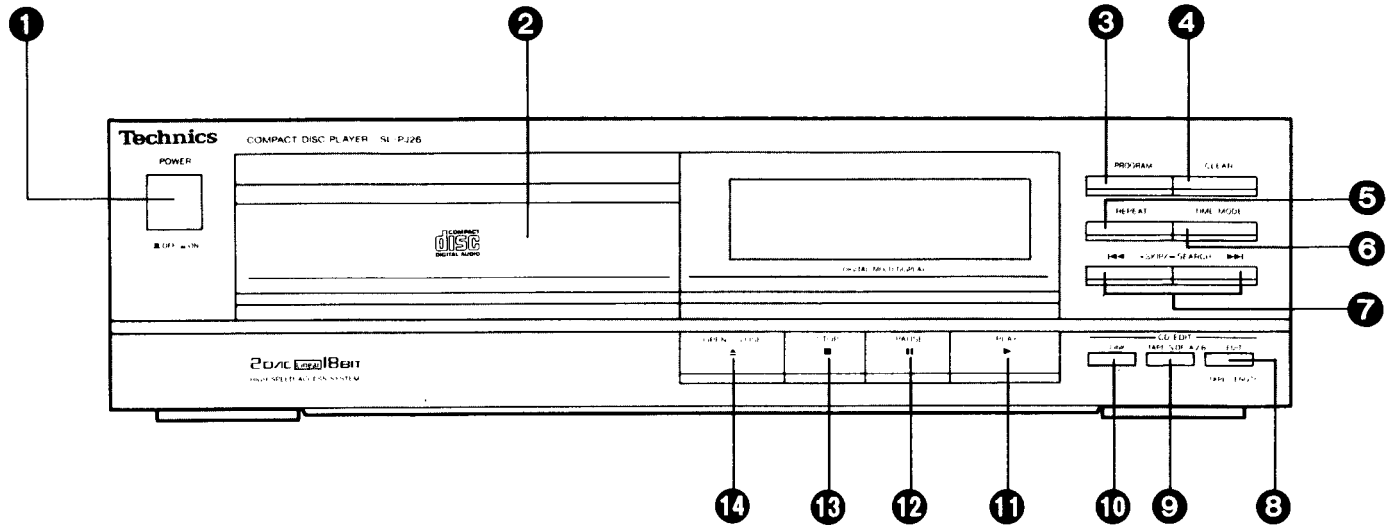


SQWD19

VAROITUS! Laite sisältää laserdiodin, joka lähettää näkymätöntä silmille vaarallista lasersäteilya

D

■ LOCATION OF CONTROLS



Control section

❶ Power switch (POWER)

❷ Disc holder

❸ Program button (PROGRAM)
Pressing this button initiates the programmed play mode. You can then enter specific tracks using the skip/search buttons.

❹ Clear button (CLEAR)
This button can be used to clear tracks from the programmed sequence one at a time.

❺ Repeat button (REPEAT)

❻ Time mode select button (TIME MODE)
Use this button to select the desired time display mode.

❼ Skip/search buttons
(⏮-SKIP/–SEARCH ⏭)

❽ Edit tape length button (EDIT/TAPE LENGTH)
This button is used when recording from a compact disc. When the button is pressed and the tape's length is specified, the tracks to be recorded will be automatically selected.

❾ Tape-side select button (TAPE SIDE A/B)
When recording compact discs to tape, this button can be used to check the number of tracks and amount of tape left over for side A or B.

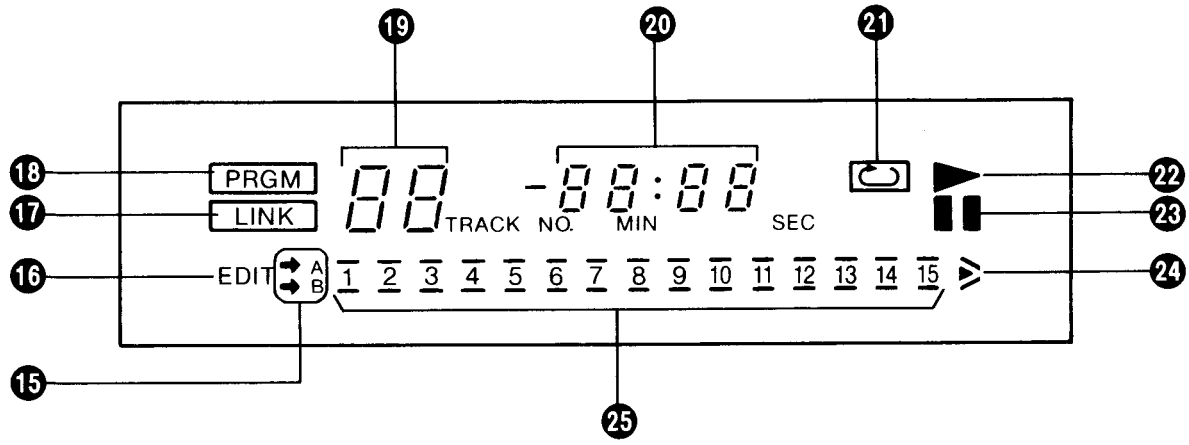
❿ Link button (LINK)
This button is used when edit-recordings are made from several compact discs.

⓫ Play button (▶ PLAY)

⓬ Pause button (❚❚ PAUSE)

⓭ Stop button (■ STOP)
This button can be used to stop the disc play, as well as to cancel the various play modes.

⓮ Disc holder open/close button
(▲ OPEN/CLOSE)



Indicators section

⑮ Tape side indicator (A/B)
Illuminates to show which cassette side, "A" or "B", has been selected with the tape-side select button.

⑯ Edit indicator (EDIT)
Illuminates when the edit tape length button is pressed and goes out when the stop button is pressed.

⑰ Link indicator (LINK)

⑱ Program indicator (PRGM)

⑲ Track number display (TRACK)

⑳ Time display (NO./MIN/SEC)

㉑ Repeat indicator ( )

㉒ Play indicator ( )

㉓ Pause indicator (▮▮)

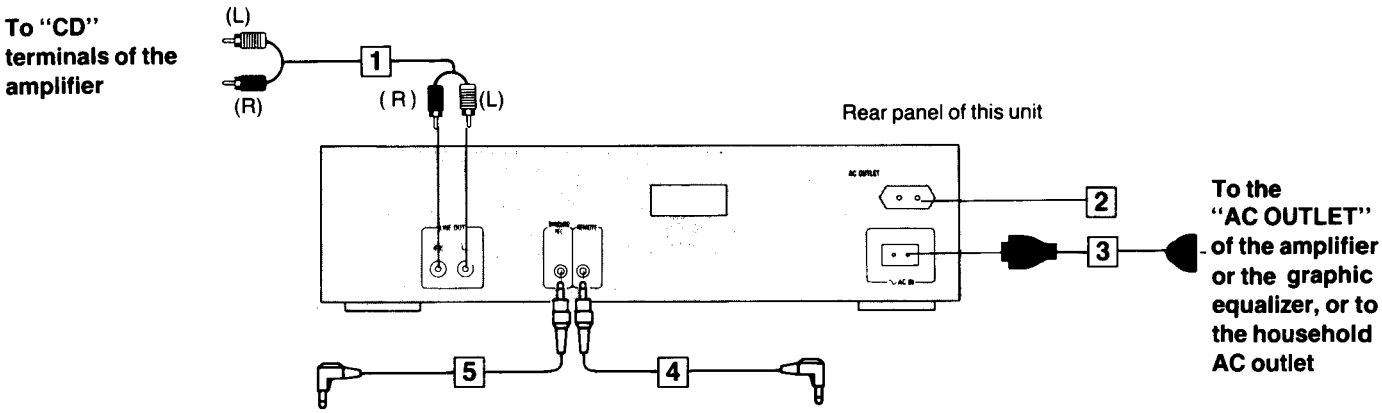
㉔ "Over" mark (≧)
This indicator lights if the total number of tracks on the disc is 16 or more.

㉕ Music matrix (1 ~ 15)
The numbers of the tracks on the disc are displayed up to a maximum of 15.

D

■ CONNECTIONS

Notes:
- Turn power off on all components before making connections.
- See the operating instructions of the amplifier for details.


To "CD" terminals of the amplifier
(L)
(R)
1
(R)
(L)
Rear panel of this unit
2
3
To the "AC OUTLET" of the amplifier or the graphic equalizer, or to the household AC outlet
5
4
To the "SYNCHRO REC" terminal of the amplifier
To the "REMOTE CONTROL" terminal of the graphic equalizer or the tape deck

1 Stereo connection cable (included)

2 AC outlet (UNSWITCHED)
Power is always available, regardless of the unit's power switch setting.
This outlet is exclusively for the connection of other audio equipment, such as a tape deck, etc. Be sure the power consumption does not exceed the wattage specified near the AC outlet.

3 AC power supply cord (included)
Note:
The configuration of the AC outlet and AC power supply cord differs according to area.

4 L-type cable (included)
This cable can be used only with a Technics graphic equalizer or a tape deck having the appropriate "REMOTE CONTROL" terminal.

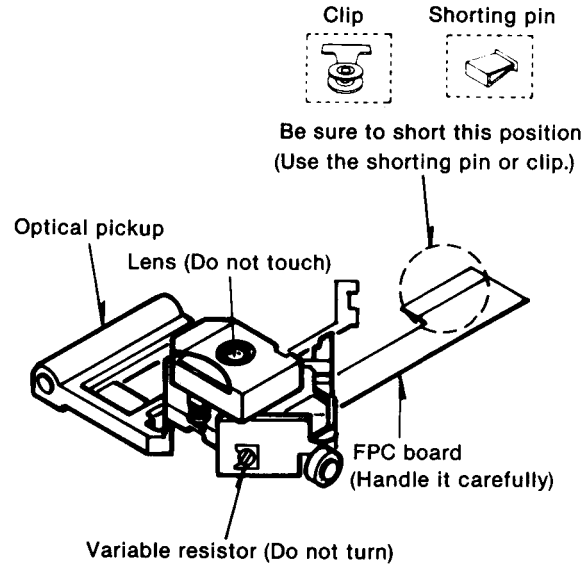
5 L-type cable (included)
This cable can be used only with a Technics amplifier having the appropriate "SYNCHRO REC" terminal.

■ HANDLING PRECAUTIONS FOR OPTICAL PICKUP

The laser diode in the optical pickup may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the optical pickup.

• Handling of optical pickup

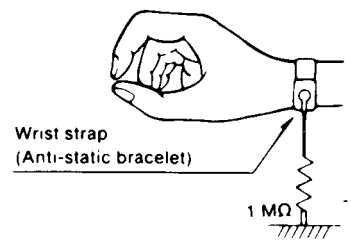
1. Do not give excessive shock to the optical pickup because it is of extremely precise structure.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board. (FPC board)
   When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board. (FPC board)
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

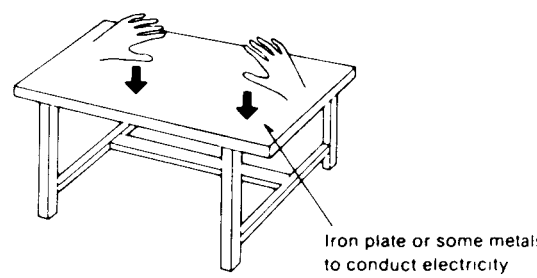


• Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to relieve the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the optical pickup.



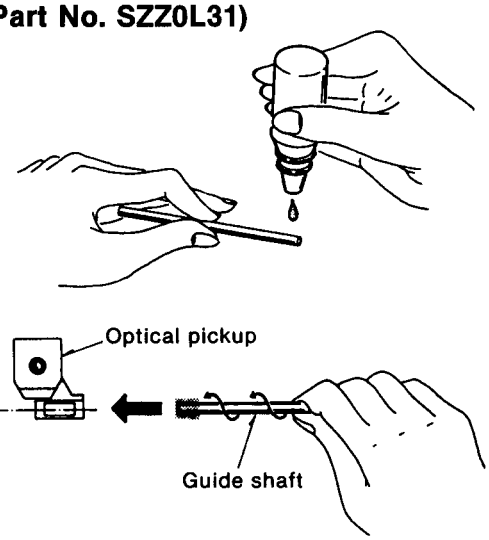


■ INSTRUCTIONS FOR TRAVERSE OIL (Part No. SZZ0L31)

The container contains 6g (approx. 3ml) of oil. Since one application (one shaft) uses 0.05ml of oil.

How to Use

(1) Remove the guide shaft in the traverse deck from the optical pickup and clean off any dust from the guide shaft.
(2) Apply one drop of the SZZ0L31 to the tip of the guide shaft.
(3) Hold the guide shaft so that its oiled end touches the optical pickup and insert it into the bearing while rotating it slowly.
(4) After securing the guide shaft, move the optical pickup by hand several times to the left and right to distribute the oil on the guide shaft.



D

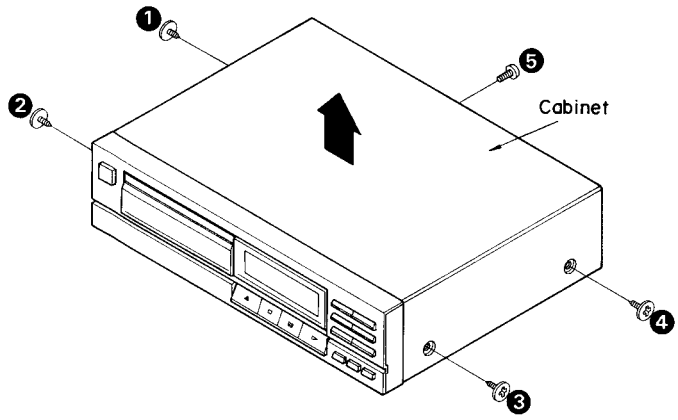
■ DISASSEMBLY INSTRUCTIONS

Warning: This product uses a laser diodes. Refer to caution statements on page 3.

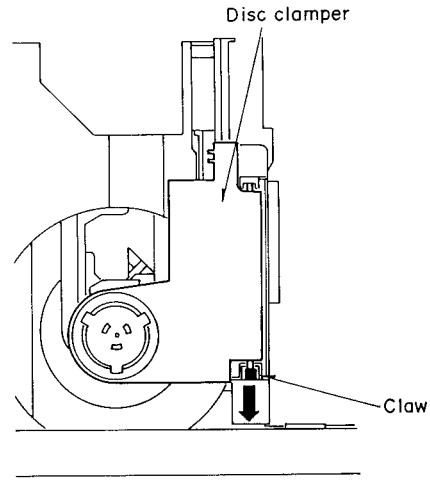
ACHTUNG:
- Die lasereinheit nicht zerlegen.
- Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

*** This CD player is equipped with FPC boards, so handle them with care during disassembly and reassembly.**

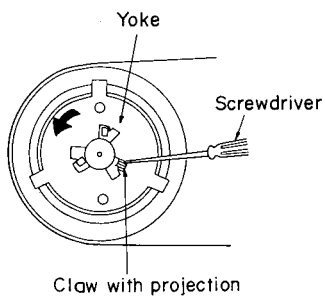
Ref. No. 1	Removal of the cabinet
Procedure 1	• Remove the 5 screws (❶~❺).

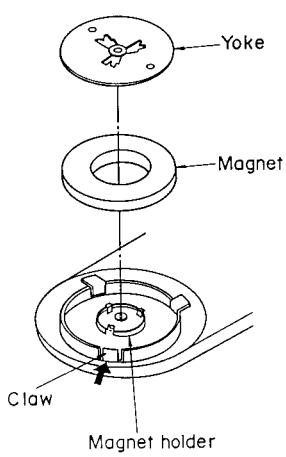


Ref. No. 2	Removal of the disc clamper
Procedure 1→2	• Push the claw in the direction of the arrow and remove the disc clamper.

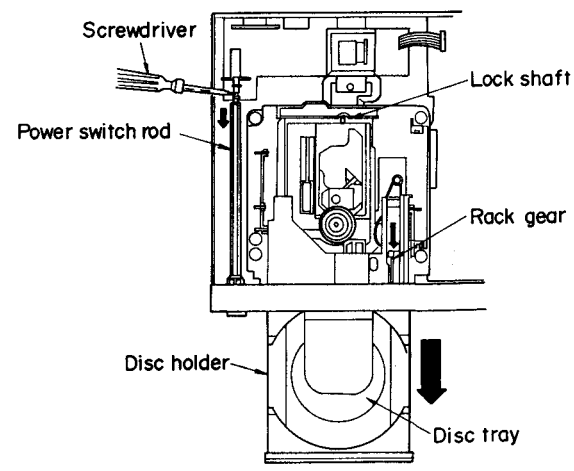


Ref. No. 3	Removal of the magnet holder and magnet
Procedure 1→2→3	1. While lifting the claw with a screwdriver, rotate yoke in the direction of the arrow and remove the yoke and magnet. 2. Release the claw of the magnet holder.





Ref. No. 4	Removal of the disc holder and power switch rod
Procedure 1→2→4	**• Removal of the disc holder:** 1. Push the rack gear slowly in the direction of the arrow until the disc tray comes up. 2. Pull out the disc holder further to remove it. **Note:** Pull the lock shaft on the bottom panel to the "FREE" position. **• Removal of the power switch rod:** 1. Set the power switch to the "OFF" position. 2. Remove the power switch rod by using a screwdriver.



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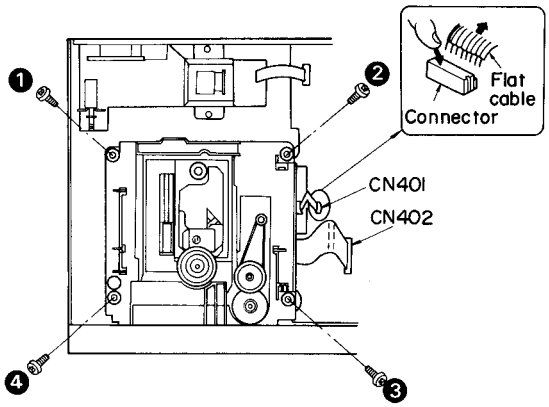
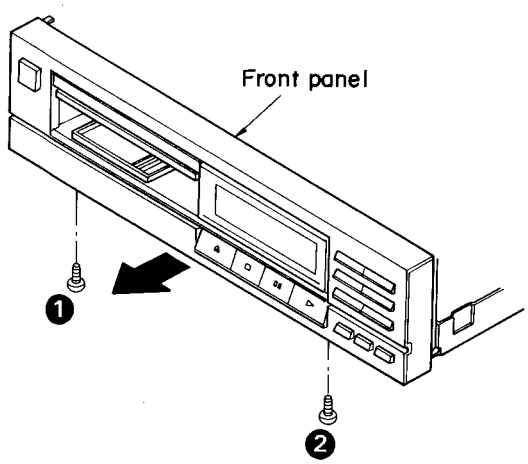
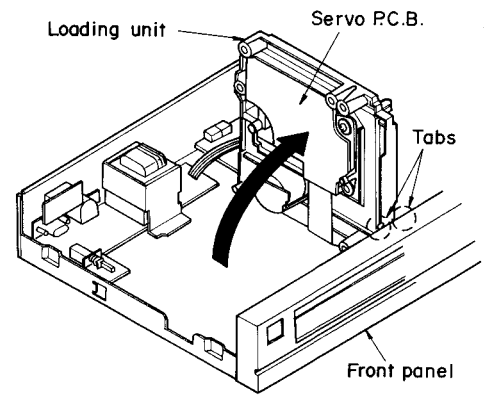
Ref. No. 5	Removal of the loading unit
Procedure 1→2→4 →5	1. Remove the 4 screws (❶~❹). 2. Remove the 2 flat cables (CN401, CN402).



Ref. No. 7	Removal of the front panel
Procedure 1→2→4 →7	1. Remove the 2 screws (❶, ❷). 2. Remove the front panel in the direction of the arrow.



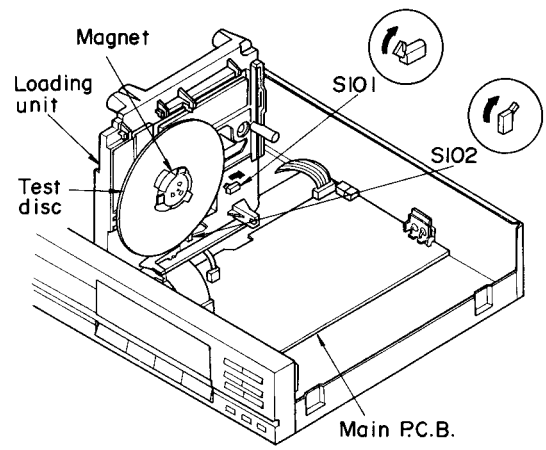
Ref. No. 6	How to check the servo P.C.B.
Procedure 5→6	



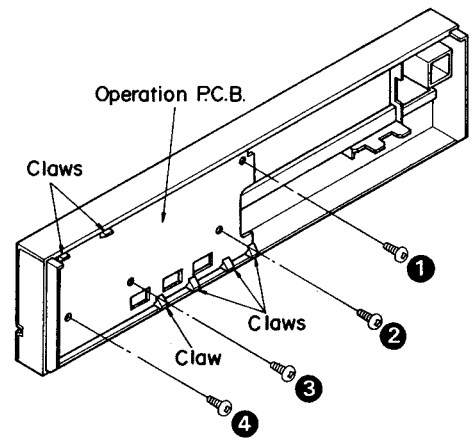
- When checking the soldered surfaces of the servo P.C.B. and replacing the parts, do as shown.
- Flat cables (CN401 and CN402) should be left connected.

To play a disc

1. Place the test disc and magnet.
2. Switch the player on.
3. First push the Open/Close switch S102 in the direction of the arrow and then, within 4 seconds, push switch S101 in the direction of the arrow as shown in the figure.



Ref. No. 8	Removal of the operation P.C.B., headphones P.C.B. and timer switch P.C.B.
Procedure 1→2→4 →7→8	1. Remove the 4 screws (❶~❹). 2. Release the 6 claws.



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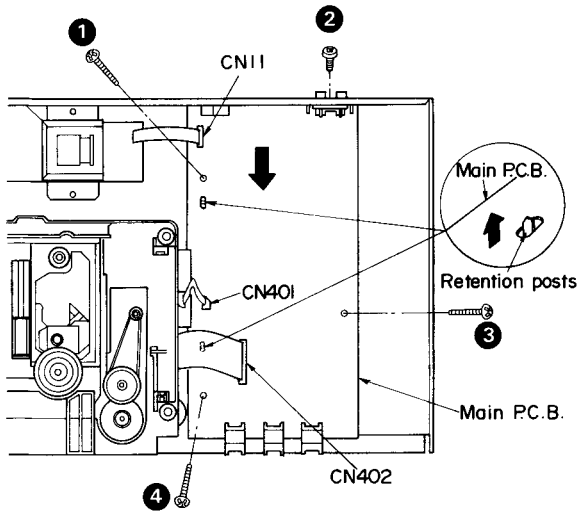
Ref. No. 9	Removal of the main P.C.B
Procedure 1→2→4 →7→9	

1. Remove the 4 screws (❶~❹).
2. Life the main P.C.B. off the retention posts on the chassis.
3. Remove the 3 flat cables (CN11, CN401, CN402).
4. Remove the main P.C.B. in the direction of the arrow.

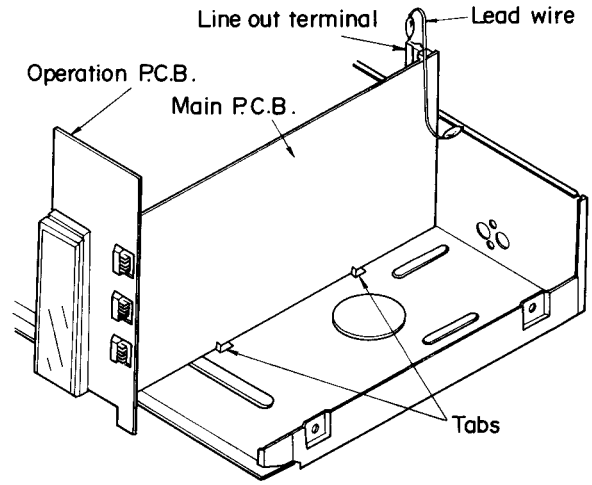


How to check the main P.C.B.

- When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown.

Cautions:

- Be sure to connect the P.C.B. ground terminal (line out terminal) and the chassis with a lead wire.
- Flat cables (CN11, CN401, CN402) should be left connected.



Ref. No. 10	Removal of the servo P.C.B. and loading motor P.C.B
Procedure 1→2→4→ 5→10	

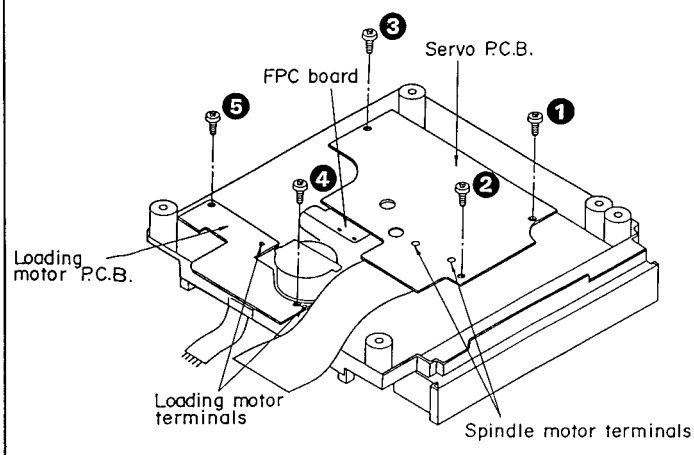
• Removal of the servo P.C.B.

1. Remove the 3 screws (❶~❸).
2. Unsolder the 2 terminals of spindle motor.
3. Remove the FPC board from the optical pickup.

Caution:
To prevent the breakdown of the laser diode, antistatic shorting pin is inserted into the FPC board.

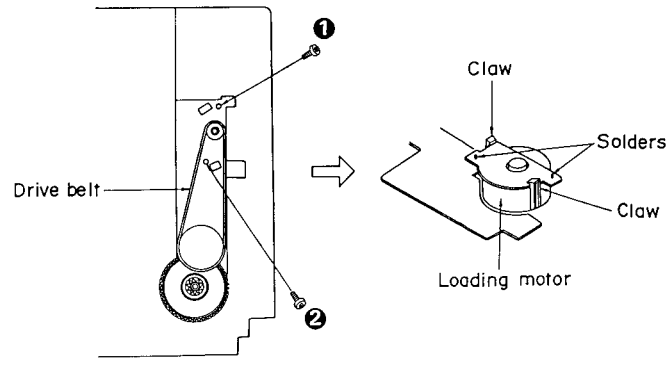
• Removal of the loading motor P.C.B.

1. Remove the 2 screws (❹, ❺).
2. Unsolder the 2 terminals of loading motor.



Ref. No. 11	Removal of the loading motor
Procedure 1→2→4 →5→11	

1. Remove the drive belt.
2. Remove the 2 screws (❶, ❷).
3. Release the 2 claws.
4. Unsolder the 2 terminals of the lead wire of the loading motor.



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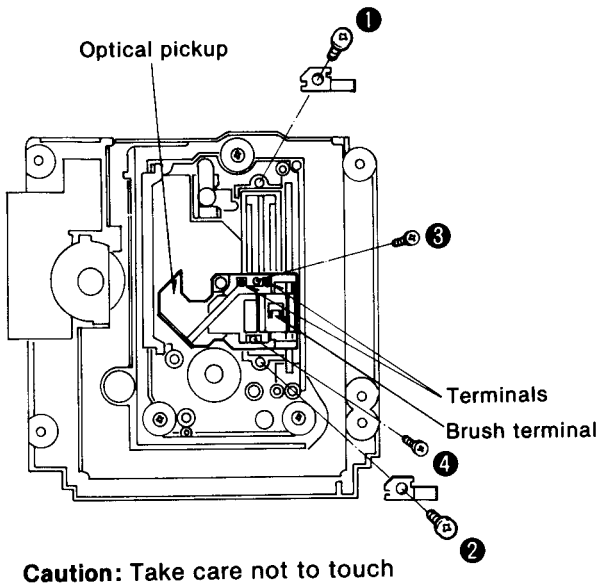
Ref. No. 12	Removal of the optical pickup
Procedure 10→12	**Refer to the handling precautions for optical pickup and instructions for traverse oil (See page 7).**

1. Remove the 2 screws (❶, ❷).
2. Unsolder the 2 terminals and the 2 screws (❸, ❹).



Caution: Take care not to touch the brush terminal.

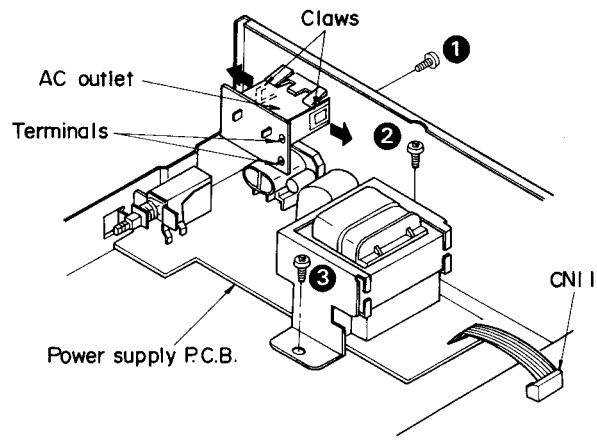
Ref. No. 13	Removal of the power supply P.C.B
Procedure 1→2→4 →13	

• Removal of the power supply P.C.B.

1. Remove the 3 screws (❶~❸).
2. Remove the flat cable (CN11).
3. Unsolder the 2 terminals.

• Removal of the AC outlet

1. Unsolder the 2 terminals.
2. Release the 2 claws.



Ref. No. 14	Removal of the spindle motor
Procedure 10→14	

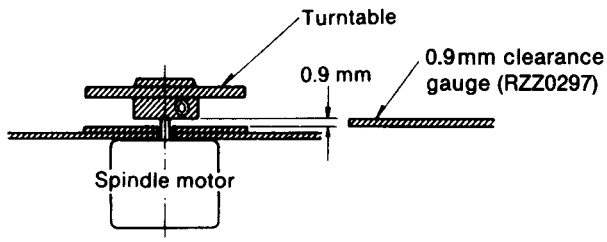
1. Loosen the screw (❶) by using a 1.27mm allen wrench and remove the turntable.
2. Remove the 2 screws (❷, ❸).

Caution:

1. Turntable height adjustment is necessary any time the turntable or spindle motor is replaced.
2. The (+) terminal of the spindle motor is indicated by the red mark.

Adjustment of turntable height

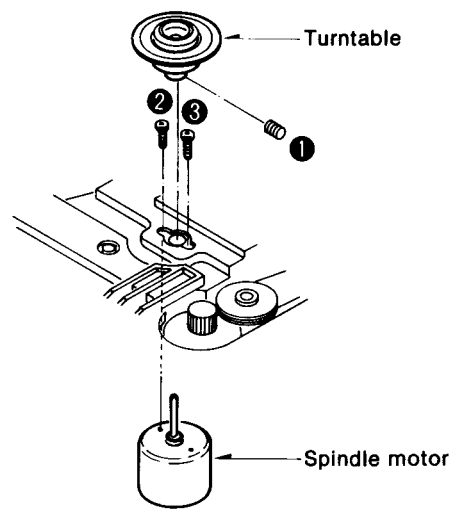
1. Insert a 0.9mm clearance gauge (RZZ0297) between the turntable and loading base as shown below.

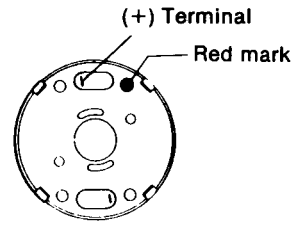


2. Tighten the turntable set-screw by using a 1.27mm allen wrench.

Caution:

Refer to turntable height adjustment (see page 13).





D

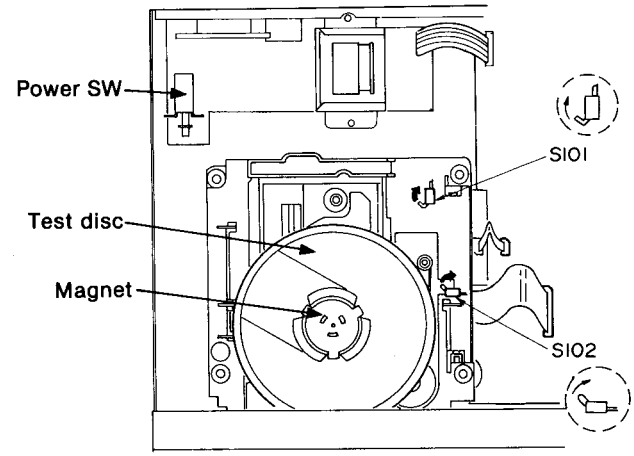
■ MEASUREMENTS AND ADJUSTMENTS

Caution:

- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens. Avoid exposure to the laser beam, especially when performing adjustments.

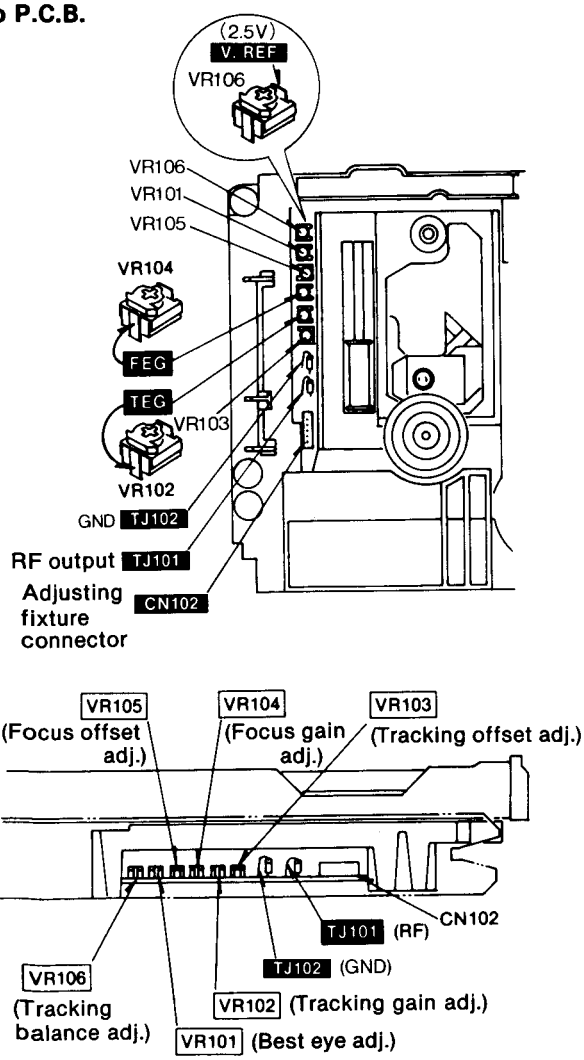
PREPARATION

1. Remove the cabinet (see Ref. No. 1 of the disassembly instructions).
2. Remove the disc clamper and magnet (see Ref. No. 2 of the same).
3. Remove the disc holder and power switch rod (see Ref. No. 3 of the same).
4. Place the test disc and magnet on the turntable.
5. While holding the Open/Close switches (S101, S102) in the directions indicated by the arrows, switch the player power ON.
6. After the test disc starts rotating, release the Open/Close switch (S101, S102).

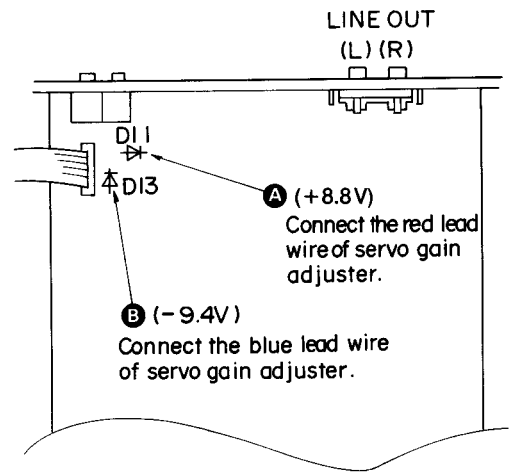


ADJUSTMENT POINTS

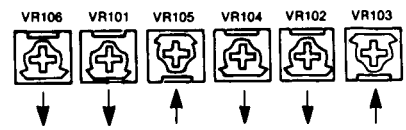
• Servo P.C.B.



• Main P.C.B.



• Temporary setting of each VR



Temporary VR setting if any of the trimmer VRs are replaced or require readjustment, temporarily set them to the following positions.

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Measuring Instruments and Special Tools

* Servo gain adjuster (SZZP1017F or SZZP1094C) ...Refer to page 16.
* Test discs

1. Playability test disc (SZZP1054C or SZZP1014F)
2. Uneven test disc (SZZP1056C)
3. Black band test disc (SZZP1057C)

* Normal disc
* Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT trigger and 1:1 probe).
* Audio frequency (AF) oscillator
* Adapter (SZZP1032F)
* Allen wrench (M2.0) (SZZP1101C)
* Allen wrench (M1.27)
* 0.9mm clearance gauge (RZZ0297)

As to the replacement of the following parts, refer to the specified sections for adjustment.

(1) Spindle motor..... Sections (1), (3) to (8)
(2) Turntable..... .Sections (1), (3) to (8)
(3) Optical pickup ..... Sections (2) to (8)

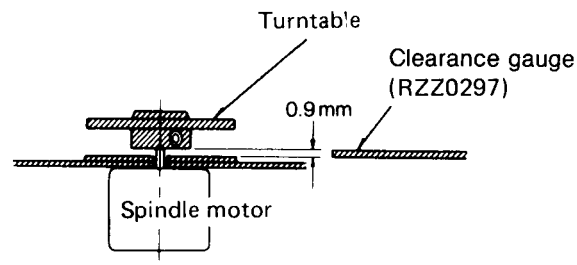
Adjusting Procedure

* If you have replaced the spindle motor or turntable, perform the following adjustment:

(1) TURNTABLE HEIGHT ADJUSTMENT

1. Insert the 0.9mm clearance gauge (RZZ0297) between the turntable and the loading base (see the figure at right).
2. Tighten the turntable retention screw with the 1.27mm allen wrench.
3. Connect the oscilloscope's CH. 1 probe across VR104's **FEG** (+) and VR106's **V. REF** (−) terminals .
   (Note: A voltage of 2.5V appears at the V. REF terminal. Take care not to short the player's chassis to the oscilloscope ground.)
   Oscilloscope setting: VOLT . . . . . 50 mV
   SWEEP . . . . . 1 ms.
   Input coupling . . . DC
4. Adjust oscilloscope's DC zero balance.
5. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).
6. Measure the DC level displayed on the oscilloscope.

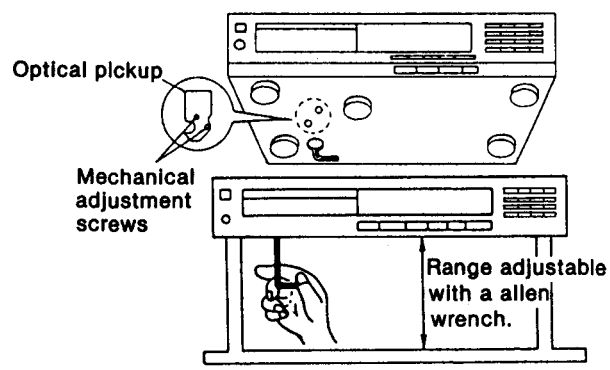
Note 1. If the measured amplitude is within a range of +/− 15mV, the turntable height is correct. If it is outside this range, adjust the turntable height by using the clearance gauge as a pry.
If the amplitude exceeds +15mV, lower turntable.
If the amplitude is below −15mV, elevate the turntable.

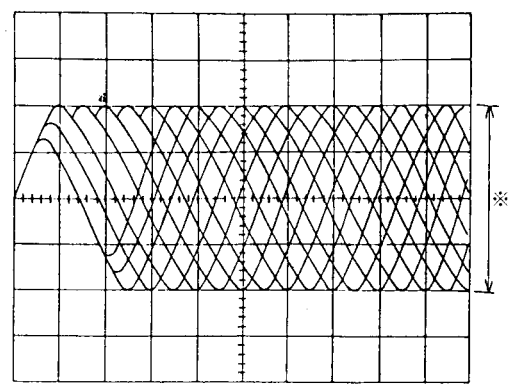


Note 2. If the measured amplitude greatly surpasses or falls short of the range above, set **VR105** at or around the center, then try to adjust the height again. (Then be sure to adjust the focus offset as well.)

(2) MECHANICAL ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (−) on the Servo P.C.B.
   Oscilloscope setting: VOLT . . . . . 100 mV
   SWEEP . . . . . 0.5 μs.
   Input coupling . . . AC
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1056C). (Playing any other track may yield a false adjustment.)
3. Leave the player in Play mode, and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0mm allen wrench until the RF signal amplitude variation on the oscilloscope is minimized.
5. After completing the adjustment, lock the **mechanical adjustments** with lock paint (RZZOL01).





※ Minimize the variation of amplitude.

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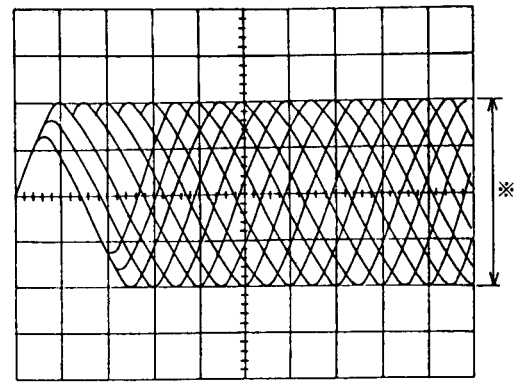
(3) BEST EYE (PD BALANCE) ADJUSTMENT

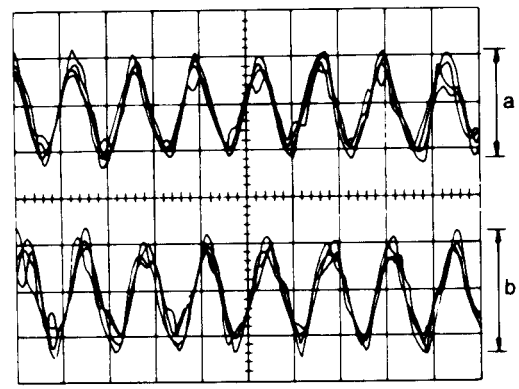
1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (−) on the Servo P.C.B.
   Oscilloscope setting: VOLT 100mV
   SWEEP . . . . . 0.5 μs.
   Input coupling . . . AC
2. Switch the player power **ON**, and play the 0.5 mm black dot on the test disc (SZZP1014F or SZZP1054C).
3. Adjust **VR101** until the RF signal eye pattern amplitude is maximized.



※ Maximize the amplitude.

(4) FOCUS GAIN ADJUSTMENT

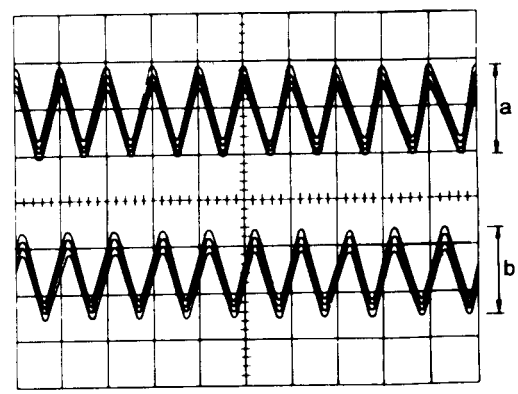
1. Connect the servo gain adjuster to the player (see page 16).
2. Set the servo gain adjuster's gain switch to position **"2"** and the ON/OFF switch to **ON**.
3. Set up the AF oscillator output for **825Hz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
4. Connect oscilloscope's CH. 1 and CH. 2 probes to the servo gain adjuster's TP1 and TP2 terminals, respectively (TP3 is GND).
   Oscilloscope setting: VOLT . . . . . 100 mV (both channels)
   SWEEP . . . . . 1ms.
   Input coupling . . . AC
5. Play the test disc (SZZP1014F or SZZP1054C).
6. Set the servo gain adjuster's gain switch to position "3", and you will see a 825 Hz signal on the oscilloscope. Adjust **VR104** until the signal amplitudes on both channels become identical to each other.
7. Set the gain switch back to position **"2"**.



※ Adjust **VR104** until a equals b.

(5) TRACKING GAIN ADJUSTMENT

1. Set up the AF oscillator output for **1.1 kHz, 150 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
2. Connect oscilloscope's CH. 1 and CH. 2 probes to the servo gain adjuster's TP1 and TP2 terminals, respectively (TP3 is GND).
   Oscilloscope setting: VOLT . . . . . 100 mV (both channels)
   SWEEP . . . . . 1ms.
   Input coupling . . . AC
3. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).
4. Set the servo gain adjuster's gain switch to position "1", and you will see a 1.1 kHz signal on the oscilloscope. Adjust **VR102** until the signal amplitudes on both channels become identical to each other.
5. Set the gain switch back to position **"2"**.



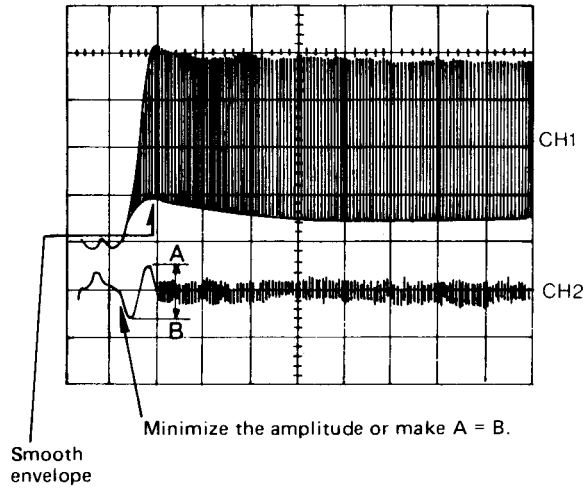
※ Adjust VR102 until a equals b.

D

(6) FOCUS OFFSET ADJUSTMENT

Note: Make sure that the servo gain adjuster's gain switch is set to position **"2"**.

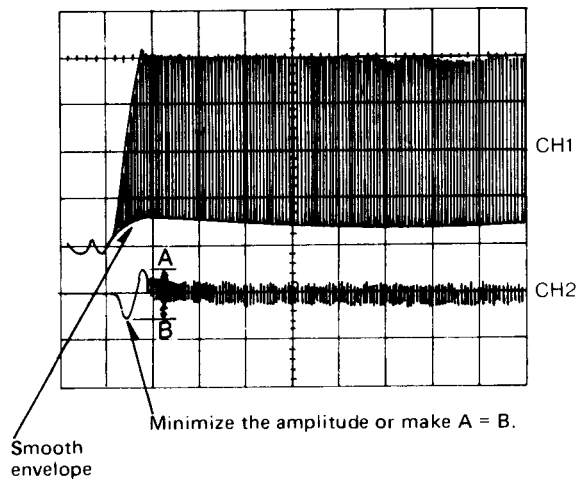
1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (–) on the Servo P.C.B. and its CH. 2 probe (+) to VR104's **FEG** terminal.
   Oscilloscope setting: VOLT. . . . . .100 mV (CH. 1)
   100 mV (CH. 2)
   SWEEP. **0.5ms**
   Input coupling. . . AC (both CH. 1 and 2)
   Trigger mode . . . NORM (trigger CH. 1.)
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR105** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH. 2 is minimized, i.e. when amplitude A equals amplitude B.



(7) TRACKING OFFSET ADJUSTMENT

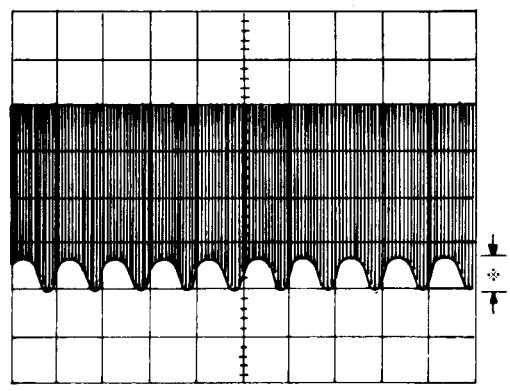
Note: Make sure that the servo gain adjuster's gain switch is set to position **"2"**.

1. Connect the oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (–) on the Servo P.C.B., and its CH. 2 probe (+) to VR102's **TEG** terminal.
   Oscilloscope setting: VOLT. . . . . **.100mV (CH. 1)**
   200mV (CH. 2)
   SWEEP. . . . . **0.5ms.**
   Input coupling. . AC (both CH. 1 and 2)
   Trigger mode. . . NORM (trigger CH. 1.)
2. Switch the player power **ON**, and play track **9** on the test disc (SZZP1057C).
3. Trigger the oscilloscope's CH. 1 so that the following waveforms are observed. Adjust **VR103** until the dip in the RF signal envelope on CH. 1 is smooth and the signal amplitude on CH. 2 is minimized, i.e. when amplitude A equals amplitude B.



(8) TRACKING BALANCE ADJUSTMENT

1. Make sure that servo gain adjuster's gain switch is set to position **"2"**.
2. Set up the AF oscillator output for **1.1 kHz, 600 mVp-p**, and connect it across the OSC and GND terminals on the servo gain adjuster.
3. Connect oscilloscope's CH. 1 probe across **TJ101** (+) and **TJ102** (–) on the Servo P.C.B. and CH. 2 probe (+) to the OSC terminal on the servo gain adjuster.
   Oscilloscope setting: VOLT. . . . . .100 mV (CH. 1)
   SWEEP. . . . . **0.5ms.**
   Input coupling. . .AC (both CH. 1 and 2)
   Trigger mode . . .NORM (trigger CH. 2)
4. Switch the player power **ON**, and play the test disc (SZZP1014F or SZZP1054C).
5. Set the servo gain adjuster's gain switch to position **"1"**, and adjust **VR106** until the jitter contained in the signal waveform on CH. 1 is minimized as shown below.
6. Disconnect the servo gain adjuster's leads from the player.



※ Jitter should be minimized.

D

(9) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

* **Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

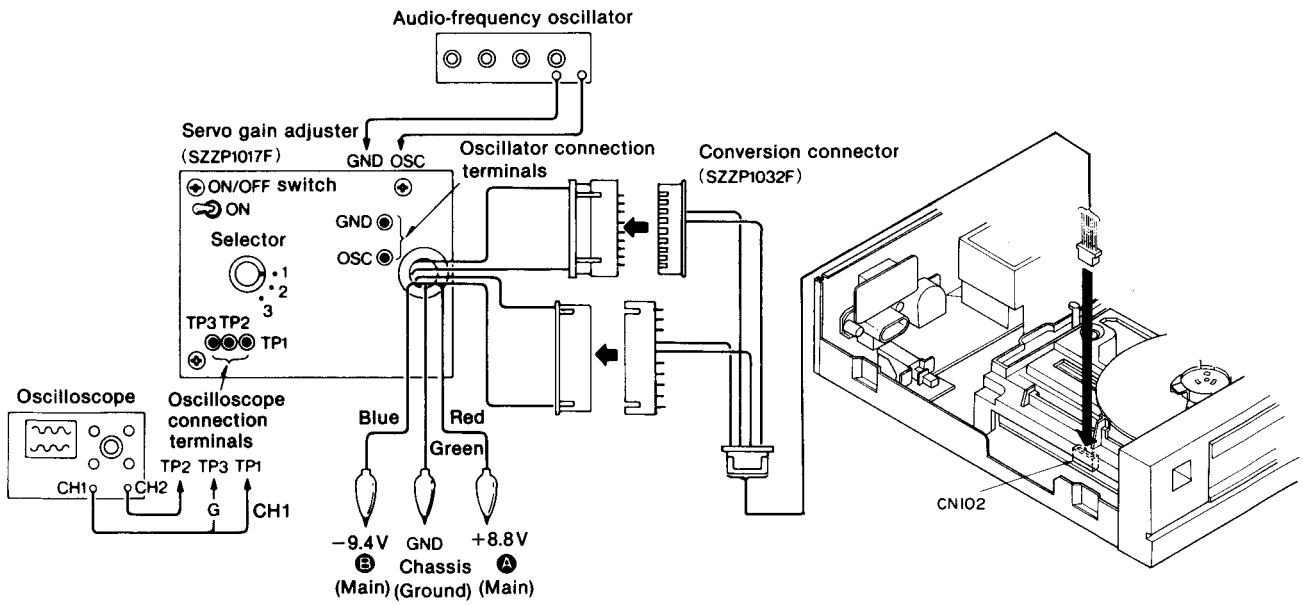
* **Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

* **Checking Using Defect Disc**

1. Play the 0.7mm black dot and the 0.7mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

• **Connection of servo gain adjuster**



■ NEW SERVO GAIN ADJUSTER (Servo Amp. Adjusting Fixture)

The following introduces the improved version of the current servo gain adjuster (SZZP1017F):

Part number: SZZP1094C

Features:

(1) Contains all oscillation frequencies and output adjustments needed for focus servo gain, tracking servo gain, and tracking balance adjustment (requires no external oscillator).
(2) Panel indicators indicate the best points of focus and tracking servo gains (no oscilloscope needed).
(3) Internal power supply eliminates the need for power supply from the CD player.

■ TERMINAL FUNCTIONS OF IC's

• IC101 (AN8373S): Servo amp.

Pin No.	Mark	I/O Division	Function
1	AMP1	I	RF signal input (X30 amp.)
2	PDAD	I	Photo detector current input (A2)
3	PDA	I	Photo detector current input (A1)
4	PDBD	I	Photo detector current input (A4)
5	PDB	I	Photo detector current input (A3)
6	LPD	I	Non-inverting laser power input
7	LD	O	Laser power auto control output
8	FBL1	I	PD balance adjustment
9	FBL2	I	
10	TBL1	I	Tracking balance adjustment
11	TBL2	I	
12	FOOFS	I	Focus offset adjustment
13	IVA	O	Current/voltage conversion output (A)
14	IVB	O	Current/voltage conversion output (B)
15	FE	O	Focus gain adjustment output
16	FPI	I	Focus error signal input
17	TPI	I	Tracking error signal input
18	C. TPL	I	Tracking error filter capacitor input
19	C. TPH		
20	C. FPL	I	Focus error filter capacitor input
21	C. FPH		

Pin No.	Mark	I/O Division	Function
22	TPO	O	Tracking error signal output
23	FPO	O	Focus error signal output
24	FGC	I	Focus gain up signal input (Not used, connected to GND)
25	TGC	I	Tracking gain up signal input (Not used, connected to GND)
26	GD	I	Focus/tracking gain down signal input (Not used, connected to GND)
27	PTO	O	Position detecting amp. output
28	PTI	I	Position detecting amp. input
29	PBO	O	Position detecting buffer output
30	POT	I	Position detecting buffer input
31	BDO	O	Dropout detection output
32	$\overline{\text{RFDET}}$	O	RF detection signal output
33	SDO	O	Dropout detection pulse output
34	C. SBDO	I	Dropout detecting capacitor input
35	ARF	O	RF signal output
36	C. AGC	I	AGC detecting capacitor input
37	VCC	I	Power supply (+4.9V input)
38	LDON	I	Laser power control input
39	RF IN	I	RF signal input
40	AMPO	O	RF signal output
41	VREF	O	Reference voltage output
42	GND	I	Ground terminal

• IC102 (AN8374S): Servo processor

Pin No.	Mark	I/O Division	Function
1	LSA	I	Phase difference input (A)
2	LSB	I	Phase difference input (B)
3	TEOFS	I	Tracking offset adjustment
4	TE	O	Tracking gain adjustment
5	TEG	I	
6	TE OUT	O	Tracking error signal output
7	TE BPF	I	Tracking error gain detecting filter (Not used, open)
8	FEG	I	Focus gain adjustment
9	FE OUT	O	Focus error signal output
10	CLW	O	Triangular wave oscillator capacitor input
11	VREF	I	Reference voltage input
12	ARF	I	RF signal input
13	CDSL	I	Data slice filter capacitor input
14	FPC	I	Frequency difference signal input
15	GND	I	Ground terminal
16	C. PLL	I	PLL loop filter constant
17	VSS	I	Ground terminal
18	CLK	I	Frequency pull-in clock signal (88.2 kHz) input
19	SRF	O	Sliced and digitized RF signal output
20	PCK	O	Clock output extracted from SRF
21	EFM	O	EFM signal output synchronous with PCK

Pin No.	Mark	I/O Division	Function
22	VDD	I	Power supply (+4.9V input)
23	SPCNT	O	Track crossing speed control output (Not used, open)
24	SENSE	O	Selector output (track crossing state)
25	TRV	O	Traverse servo control output
26	$\overline{\text{FLOCK}}$	O	Focus lock signal output
27	KICK	O	Track kick signal output
28	LDON	O	Laser power control output
29	VDET	O	Focus/tracking gain up output (Not used, open)
30	CNT1	I	Control input (FOON: Focus servo ON signal)
31	CNT2	I	Control input (TRON: Tracking servo ON signal)
32	CNT3	I	Control input (KICKF: Kick direction (forward) command)
33	CNT4	I	Control input (KICKR: Kick direction (reverse) command)
34	TRVF	I	Traverse forward command signal
35	TRVR	I	Traverse backward command signal
36	$\overline{\text{RFDET}}$	I	RF detection signal input
37	BDO	I	Dropout detection input
38	VCC	I	Power supply (+4.9V input)
39	TVPO	O	Traverse position detecting resistor/capacitor inputs
40	TVPI	I	
41	BROUT	O	Tracking drive control output
42	BRIN	I	Tracking error signal input

• IC103 (AN8377): BTL drive

Pin No.	Mark	I/O Division	Function
1	PVCC	I	Driver power supply (+8.8V input)
2	VCC	I	Power supply (+8.8V input)
3	TB	O	External transistor base driving output
4	VMON	O	Voltage output
5	TVDI	I	Traverse error signal input
6	FDI	I	Focus error signal input
7	TDI	I	Tracking error signal input
8	VREF	I	Reference voltage input

Pin No.	Mark	I/O Division	Function
9	TD–	O	Inverting output of tracking driver
10	TD+	O	Non-inverting output of tracking driver
11	FD–	O	Inverting output of focus driver
12	FD+	O	Non-inverting output of focus driver
13	TVD–	O	Inverting output of traverse driver
14	TVD+	O	Non-inverting output of traverse driver
15	$\overline{\text{RESET}}$	O	Reset signal output
16	PC	I	PC input (connect to GND)

D

• IC301 (MN6625): Digital signal processing

Pin No.	Mark	I/O Division	Function
1	BYTCK	O	Serial data byte clock (Not used, open)
2	FCLK	O	Crystal frame clock (Not used, open)
3	DEMPH	O	De-emphasis ON signal (de-emphasis ON at "H") (Not used, open)
4	SRDATA	O	Serial data output (MSB first)
5	SCK	O	Serial bit clock output
6	LRCK	O	LR discrimination signal output
7	WDCK	O	Serial data output word clock
8	LDG	O	L channel deglitch signal (Not used, open)
9	RDG	O	R channel deglitch signal (Not used, open)
10	IPFLAG	O	Interpolation flag (Interpolation at "H")
11	FLAG	O	Error flag terminal
12	XCK	O	Clock (16.9344 MHz) output (Not used, open)
13	TEST	I	Test mode selection (Not used, connected to +4.9V)
14	TX	O	Digital signal output (Not used, open)
15	SLEEP	I	Mode selector ("L": normal, "H": SLEEP mode) (Not used, connected to GND)
16	CSEL	I	Test terminal ("L": normal) (Not used, connected to GND)
17	X1	I	Clock input (16.9344 MHz)
18	X2	O	Clock output (16.9344 MHz) (Not used, open)
19	VSS	I	GND terminal
20	BLKCK	O	Sub-code block (Q data) clock (75 Hz)
21	$\overline{\text{CLDCK}}$	O	Sub-code frame (Q data) clock (7.35 kHz)
22	$\overline{\text{SUBQ}}$	O	Sub-code (Q data) output
23	$\overline{\text{RST}}$	I	Reset signal input (reset at "L")
24	MLD	I	Command load signal input

Pin No.	Mark	I/O Division	Function
25	MCLK	I	Command clock signal input
26	MDATA	I	Command data input
27	DMUTE	I	Muting control
28	$\overline{\text{TRON}}$	I	Tracking servo ON signal (tracking servo ON at "L")
29	STAT	O	Processing condition (CRC, CUE, CLVS, TT STOP, FCLV)
30	SUBC	O	Sub-code serial output data (Not used, open)
31	SBCK	I	Clock for sub-code serial output (Not used, open)
32	SMCK	O	Clock output (4.2336 MHz)
33	VDD	I	Power supply (connected to +4.9V)
34	MEMP	I	Emphasis signal input
35	FG	I	Spindle motor FG signal input (Not used, open)
36	PC	O	Spindle motor ON signal (ON at "L")
37	EC	O	Spindle motor drive signal
38	RESY	O	Resynchronizing signal (Not used, open)
39	DO	I	Drop-out signal (Drop-out at "H")
40	SRF	I	EFM signal input (DSL)
41	EFM	I	EFM signal input (PLL)
42	PCK	I	PLL extract clock input (4.3218 MHz)
43	FPC	O	PLL frequency comparision signal
44 ∫ 51	D7 ∫ D0	I/O	16K RAM data input/output
52	RAM/OE	O	16K RAM $\overline{\text{OE}}$ signal
53	RAM/WE	O	16K RAM $\overline{\text{WE}}$ signal
54 ∫ 64	RAM/A0 ∫ RAM/A10	O	16K RAM address signal (RAMA0: LSB, RAMA10: MSB)

•IC401 (MN1554PEZ-1): System control

Pin No.	Mark	I/O Division	Function
1	BRECV	—	(Not used, open)
2	BSEND	—	(Not used, open)
3	SYNC	O	(Not used, open)
4	SIRQ	I	Not used (connected to +4.9V)
5	BLKCK	I	Sub-code block (Q data) clock input (75Hz)
6	CLDCK	I	Sub-code block (Q data) clock input (7.35kHz)
7	SBO	I	(Not used, open)
8	SUBQ	I	Sub-code (Q data) input
9	RST	I	Reset signal input
10 ∫ 13	P20 ∫ P23	O	Not used (connected to +4.9V)
14	CLOSE	O	Loading motor "Close" command
15	OPEN	O	Loading motor "Open" command
16	SLOW	O	(Not used, open)
17	MUTE	O	Muting control
18	SEEK	O	Traverse servo control (Not used, open)
19	NC	–	Not connected
20	TRV.R	O	Traverse "Reverse" command signal
21	TRV.F	O	Traverse "Forward" command signal
22	CNT4	O	Optical servo IC control signal (KICKR: Kick direction [reverse] command)
23	CNT3	O	Optical servo IC control signal (KICKF: Kick direction [forward] command)
24	CNT2	O	Optical servo IC control (TRON: Tracking servo)
25	VDD	I	Power supply (connected to +4.9V)
26	DOWN	O	(Not used, open)
27	UP	O	(Not used, open)
28	CNT1	O	Optical servo IC control signal (FOON: Focus servo)

Pin No.	Mark	I/O Division	Function
29	CLOSE SW	I	Disc holder "Open" detection
30	OPEN SW	I	Disc holder "Close" detection
31	BCLK	I	(Not used, connected to GND)
32	BDATA	I	(Not used, connected to GND)
33	STAT	I	Processing status input from signal processing LSI
34	COMP	O	TOC reading control (ON at "L") (Not used, connected to GND)
35	FLOCK	I	Optical servo condition (focus) input
36	SENSE	I	Optical servo condition (track cross) input
37	RECV	I	Data receipt command signal
38	SEND	I	Data transmission command signal
39	ACK	I	Data discrimination signal
40	CLK	I	Data lock signal
41 ∫ 44	DATA0 ∫ DATA3	I	Key scan signal
45 ∫ 52	NC	I	Not connected
53	OSC2	I	Clock terminal
54	OSC1	I	Clock input
55	X1	I	Optical servo condition input
56	X0	O	(Not used, open)
57	GND	I	GND terminal
58	DMUTE	O	Muting control
59	MDATA	O	Command data output
60	MCLK	O	Data clock output (command clock signal)
61	MLD	O	Data output (command load signal)
62	DOUTON	O	Optical output control signal (Not used, open)
63	EMPH	O	Emphasis signal output
64	NC	—	Not connected

D

• IC601 (MN15283PJH): FL drive and timing signal generator

Pin No.	Mark	I/O Division	Function
1	VSS	I	GND terminal
2	X0	O	(Not used, open)
3	XI	I	Optical servo condition input (Not used, open)
4 ∫ 7	P00 ∫ P03	O	Key scan signal
8	P10(CLK)	O	Data lock signal
9	P11(ACK)	O	Data discrimination signal
10	P12(SEND)	O	Data transmission command signal
11	P13(RECV)	O	Data receipt command signal
12	$\overline{SYNC}$	O	(Not used, open)
13	$\overline{RST}$	I	Reset signal input (reset at "L")
14	$\overline{IRQ/TC1}$	I	Sub-code block (Q data) clock (75Hz) input (Not used, open)
15 ∫ 18	P50 ∫ P53	I	Key return signal
19	$\overline{SBT}$	I	Sub-code frame clock (7.35kHz) (Not used, open)
20	$\overline{SBD}$	I	Sub-code Q data input (Not used, open)
21 ∫ 24	P20 ∫ P23	O	Key scan signal
25	P30	O	Key scan signal
26	P31	O	Key scan signal
27	P32	I	(Not used, open)
28	P33	—	(Not used, open)
29	P40	I	Key return signal
30	P41	I	(Not used, connected to +5V)

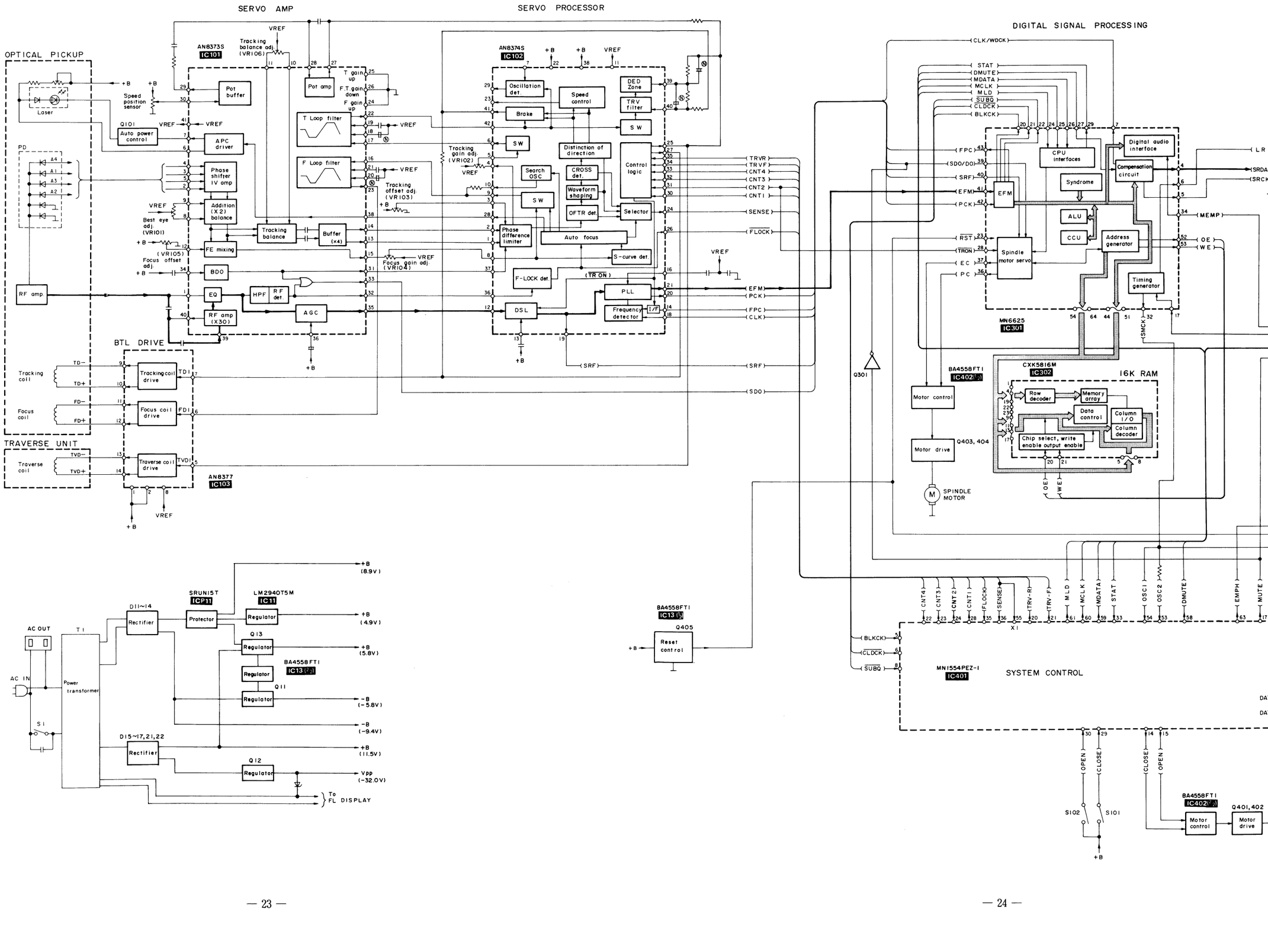
Pin No.	Mark	I/O Division	Function
31, 32	P42 • P43	I	(Not used, open)
33	PE0	O	Synchro rec control terminal
34	PE1	O	
35	P60	O	(Not used, open)
36	P61	O	FL drive power supply (connected to −32.0V)
37	DAC	O	(Not used, open)
38	VPP	I	FL drive power supply (Not used, open)
39	D0	O	FL grid signal
40	D1	O	FL grid signal
41	D2	O	FL grid signal
42	D3	O	FL grid signal
43 ∫ 48	D4 ∫ D9	O	FL grid signal
49 • 50	DA • DB	O	FL grid signal (Not used, open)
51	DC	O	FL grid signal
52	DD	O	FL grid signal
53 ∫ 61	S8 ∫ S0	O	FL anode signal
62	VDD	I	Power supply (connected to +4.9V)
63	OSC2	I	Clock terminal
64	OSC1	I	Clock input

• IC801 (MN6471): Digital filter and D/A converter

Pin No.	Mark	I/O Division	Function
1	MLD	I	Command load input (load: L)
2	RSTB	I	Reset signal input (reset at "L")
3	IE	I	I²S select terminal ("H" = I²S) (connected to GND)
4	TP1	—	TEST terminal (Not connected)
5	TP2	—	
6	TEST1	I	TEST terminal 1 (connected to GND)
7	TEST2	I	TEST terminal 2 (connected to GND)
8	NC	—	Not connected
9	NC	—	Not connected
10	AVDD4	I	Power supply (connected to +5.8V)
11	OUTL (−)	O	Lch data output, (−) terminal
12	AVSS4	I	GND terminal
13	AVSS3	I	GND terminal
14	OUTL (+)	O	Lch data output, (+) terminal
15	AVDD3	I	Power supply (connected to +5.8V)
16	NC	—	Not connected
17	AVDD2	I	Power supply (connected to +5.8V)
18	OUTR (−)	O	Rch data output, (−) terminal
19	AVSS2	I	GND terminal (analog system)
20	AVSS1	I	GND terminal (analog system)
21	OUTR (+)	O	Rch data output, (+) terminal

Pin No.	Mark	I/O Division	Function
22	AVDD1	I	Power supply (connected to +5.8V)
23	DVDD1	I	Power supply (connected to +4.9V)
24	DVSS1	I	GND terminal (digital system)
25	X2	O	Clock output
26	X1	I	Clock input
27	NC	—	Not used, connected to GND
28	DVDD2	I	Power supply (connected to +4.9V)
29	DVSS2	I	GND terminal (digital system)
30	NSUB	I	Power supply (connected to +4.9V)
31	768fs	O	768 fs (Not used)
32	192fs	O	192 fs (Not used)
33	LRPOL	I	LR clock selector (connected to +4.9V)
34	LR	I	L/R clock
35	SRCK	I	Serial data best clock
36	SRDATA	I	Serial data input (MSB first)
37	DVSS 3	I	GND terminal (digital system)
38	DVDD3	—	Power supply (connected to +4.9V)
39	384 fs	O	384 fs (16.9344 MHz) output
40	PD	I	Power down terminal (connected to GND)
41	MDATA	I	Command data input
42	MCLK	I	Command clock input

■ BLOCK DIAGRAM



SERVO PROCESSOR

DIGITAL SIGNAL PROCESSING

AN8374S IC102

Oscillation det.
Brake
SW
Search OSC
SW
Phase difference limiter
DSL
Speed control
Distinction of direction
CROSS det.
Waveform shaping
OFTR det.
Auto focus
S-curve det.
F-LOCK det.
PLL
Frequency detector
1/F
DED Zone
TRV filter
SW
Control logic
Selector
+B
+B
VREF
VREF
(TR ON)

TRVR
TRVF
CNT4
CNT3
CNT2
CNT1
SENSE
FLOCK
EFM
PCK
FPC
CLK
SRF
SDO

CLK/WDCK
STAT
DMUTE
MDATA
MCLK
MLD
SUBQ
CLDCK
BLKCK

MN6625 IC301

CPU interfaces
Digital audio interface
Compensation circuit
Syndrome
EFM
ALU
CCU
Address generator
Spindle motor servo
Timing generator

FPC
SDO/DO
SRF
EFM
PCK
RST
TRON
EC
PC
MEMP
OE
WE
SMCK

MN6471 IC801 DIGITAL FILTER & D/A CONVERTER

LR
SRDATA
SRCK
+B
S/P Converter
F I R
MASH
PWM 768fs
PWM 768fs
Analog block
Analog block
Microcomputer interface
Timing generator
RSTB
MDATA
MCLK
MLD
64fs
X801
384FS

LM833M63 IC803
Comparator
Comparator
H8DN2175M IC805
L. P. F.
L. P. F.
NJM4560M IC804
Buffer amp.
Buffer amp.
Q803, 804
Muting drive
L ch
R ch
LINE OUT
H8DN2175M IC806
Q801, 802
Emphasis drive

Q851~853
Muting control

Q854, 855
Emphasis control

BA4558FT I IC402 (1/2)
Motor control
Motor drive
Q403, 404
SPINDLE MOTOR

CXK5816M IC302
16K RAM
Row decoder
Memory array
Data control
Column I/O
Column decoder
Chip select, write enable output enable

Q301

Q408, 409
Remote control drive
REMOTE CONTROL

BA4558FT I IC13 (1/2)
Q405
Reset control
+B

MN1554PEZ-1 IC401
SYSTEM CONTROL

CNT4
CNT3
CNT2
CNT1
FLOCK
SENSE
TRV-R
TRV-F
MLD
MCLK
MDATA
STAT
OSC1
OSC2
DMUTE
EMPH
MUTE
RST
X1
BLKCK
CLDCK
SUBQ

RECV
SEND
ACK
CLK
DATA0 ~ DATA3
P00
P01
P02
P03
P10 ~ P13

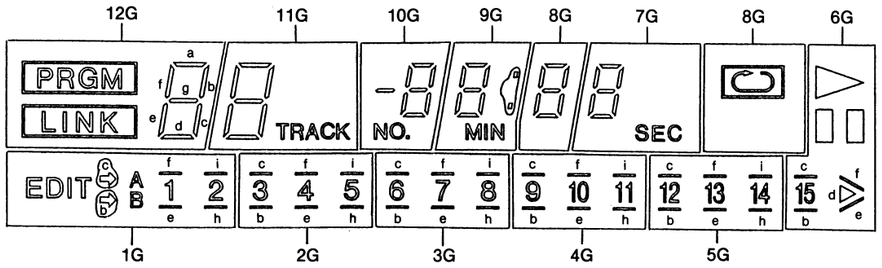
MN15283PJH IC601T
FL DRIVE & KEY MATRIX CONTROL
OSC2
OSC1
RST
-B
P61
IRQ
P20~P23
P30, P31
P40
P52, P53
P60
P61
KEY MATRIX
Q601
Synchro rec control
Synchro rec drive
Q406, 407
SYNCHRO REC CONTROL
DO ~ D9, DA ~ DD
S0 ~ S8
FL DISPLAY
FL601

OPEN
CLOSE
CLOSE
OPEN
S102
S101
BA4558FT I IC402 (2/2)
Motor control
Motor drive
Q401, 402
LOADING MOTOR
+B

Note)
• ⟶ Audio signal

■ INTERNAL CONNECTION OF FL

• Grid connection diagram



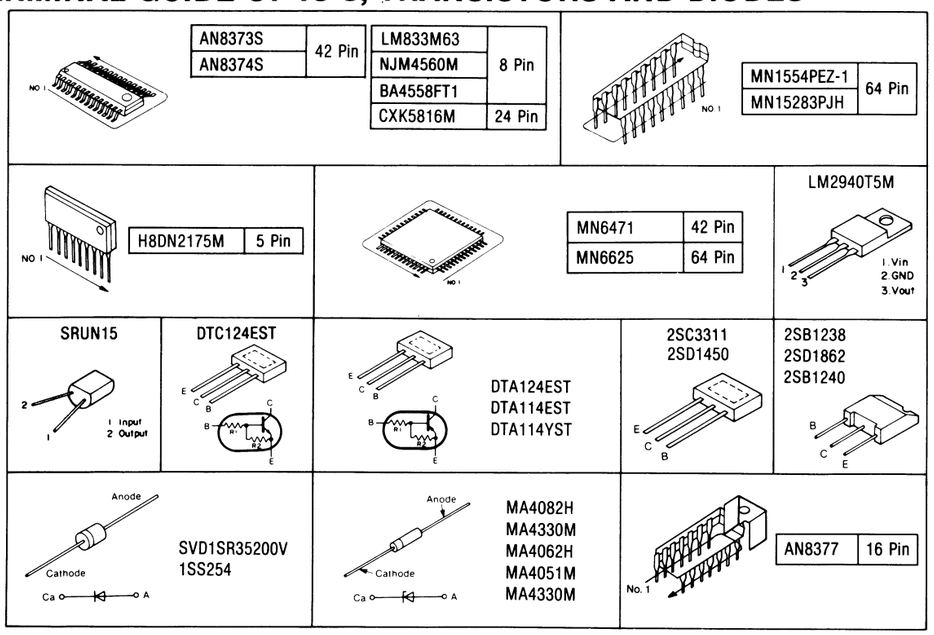
• Pin connection table

PIN NO.	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	a	NP	NP	b	c	d	e	f	g	h	i	12G	11G	NP	NP	NP	NP	10G	9G	8G	7G	6G	5G	4G	3G	2G	NP	NP	NP	1G	NP	F1	F1

• Anode connection table

	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
a	a	a	a	a	a	a	15	12	9	6	3	EDIT A/B
b	b	b	b	b	b	b	— (15)	— (12)	— (9)	— (6)	— (3)	(F) →
c	c	c	c	c	c	c	— (15)	— (12)	— (9)	— (6)	— (3)	(上) →
d	d	d	d	d	d	d	▶	13	10	7	4	1
e	e	e	e	e	e	e	╲	— (13)	— (10)	— (7)	— (4)	— (1)
f	f	f	f	f	f	f	╱	— (13)	— (10)	— (7)	— (4)	— (1)
g	g	g	g	g	g	g	▶	14	11	8	5	2
h	PRGM	TRACK	—	MIN	-	SEC	▮▮	— (14)	— (11)	— (8)	— (5)	— (2)
i	LINK	-	No.	:	⟲	-	-	— (14)	— (11)	— (8)	— (5)	— (2)

■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



■ SCHEMATIC DIAGRAM

(Parts list on pages 40~44).

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

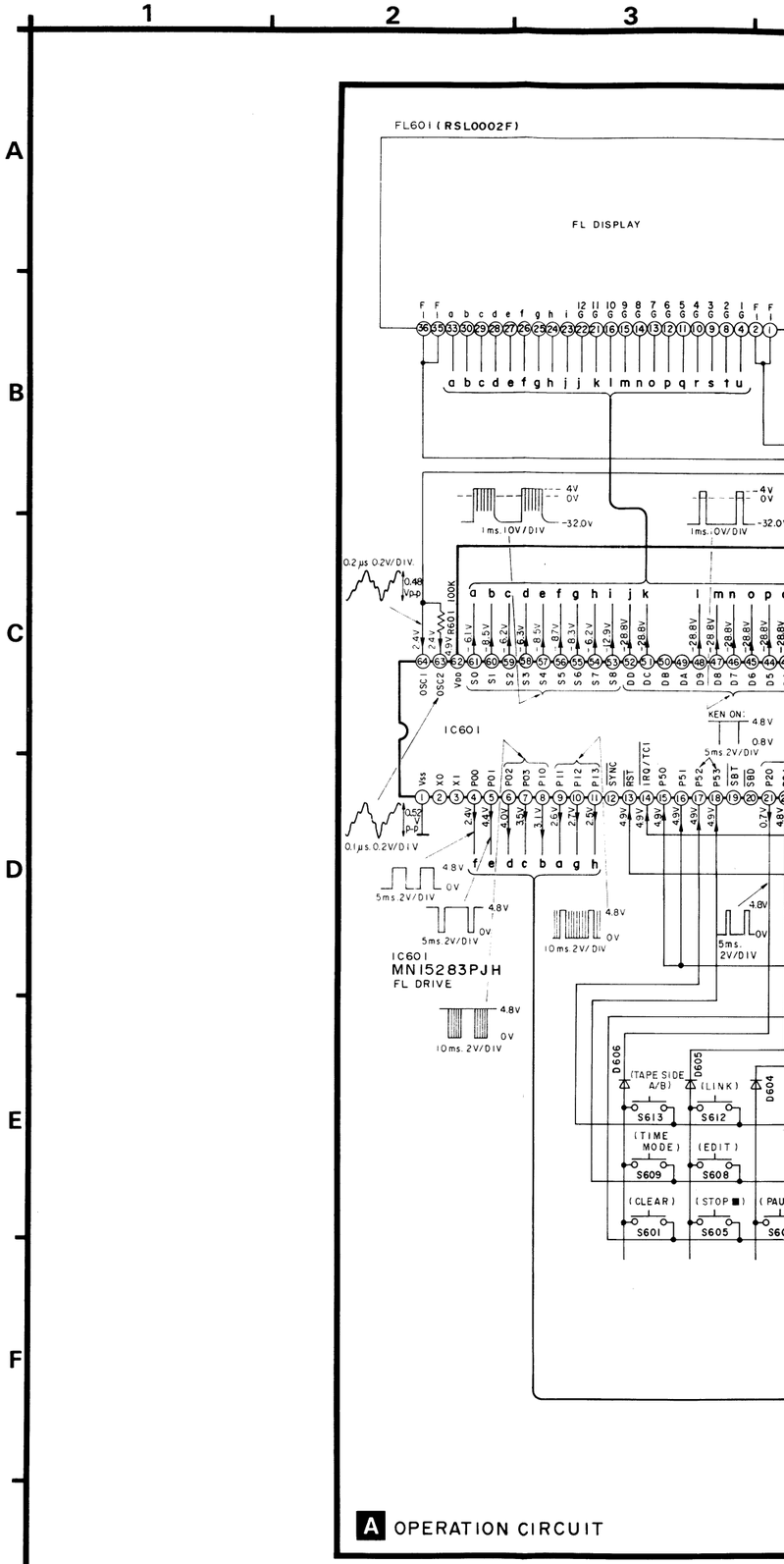
- **S1** : Power switch in "**on**" position.
- **S2** : Voltage selector switch. For (GC) area.
- **S101** : Disc holder open/close detection switch.
- **S102** : Disc holder open/close detection switch.
- **S601** : Clear (CLEAR) switch.
- **S602** : Program (PROGRAM) switch.
- **S603** : Play (▶ PLAY) switch.
- **S604** : Pause (▮▮ PAUSE) switch.
- **S605** : Stop (■ STOP) switch.
- **S606, 611** : Skip/search (I◀◀-SKIP/-SEARCH ▶▶I) switches. S606: Reverse, S611: Forward
- **S607** : Repeat (REPEAT) switch.
- **S608** : Edit tape length (EDIT/TAPE LENGTH) switch.
- **S609** : Time mode select (TIME MODE) switch.
- **S610** : Disc holder open/close (▲ OPEN/CLOSE) switch.
- **S612** : Link (LINK) switch.
- **S613** : Tape-side select (TAPE SIDE A/B) switch

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  * The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.
- Important safety notice: Components identified by △ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- —□—/--□--- : Positive voltage lines and negative voltage lines.
  ····· : Audio signal lines.

Caution !

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.



A OPERATION CIRCUIT

■ SCHEMATIC DIAGRAM

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- **S606, 611** : Skip/search (I◀◀-SKIP/-SEARCH ▶▶I) switches. S606: Reverse, S611: Forward
- **S607** : Repeat (REPEAT) switch.
- **S608** : Edit tape length (EDIT/TAPE LENGTH) switch.
- **S609** : Time mode select (TIME MODE) switch.
- **S610** : Disc holder open/close (▲ OPEN/CLOSE) switch.
- **S612** : Link (LINK) switch.
- **S613** : Tape-side select (TAPE SIDE A/B) switch

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  * The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- —□— /--□--- : Positive voltage lines and negative voltage lines.
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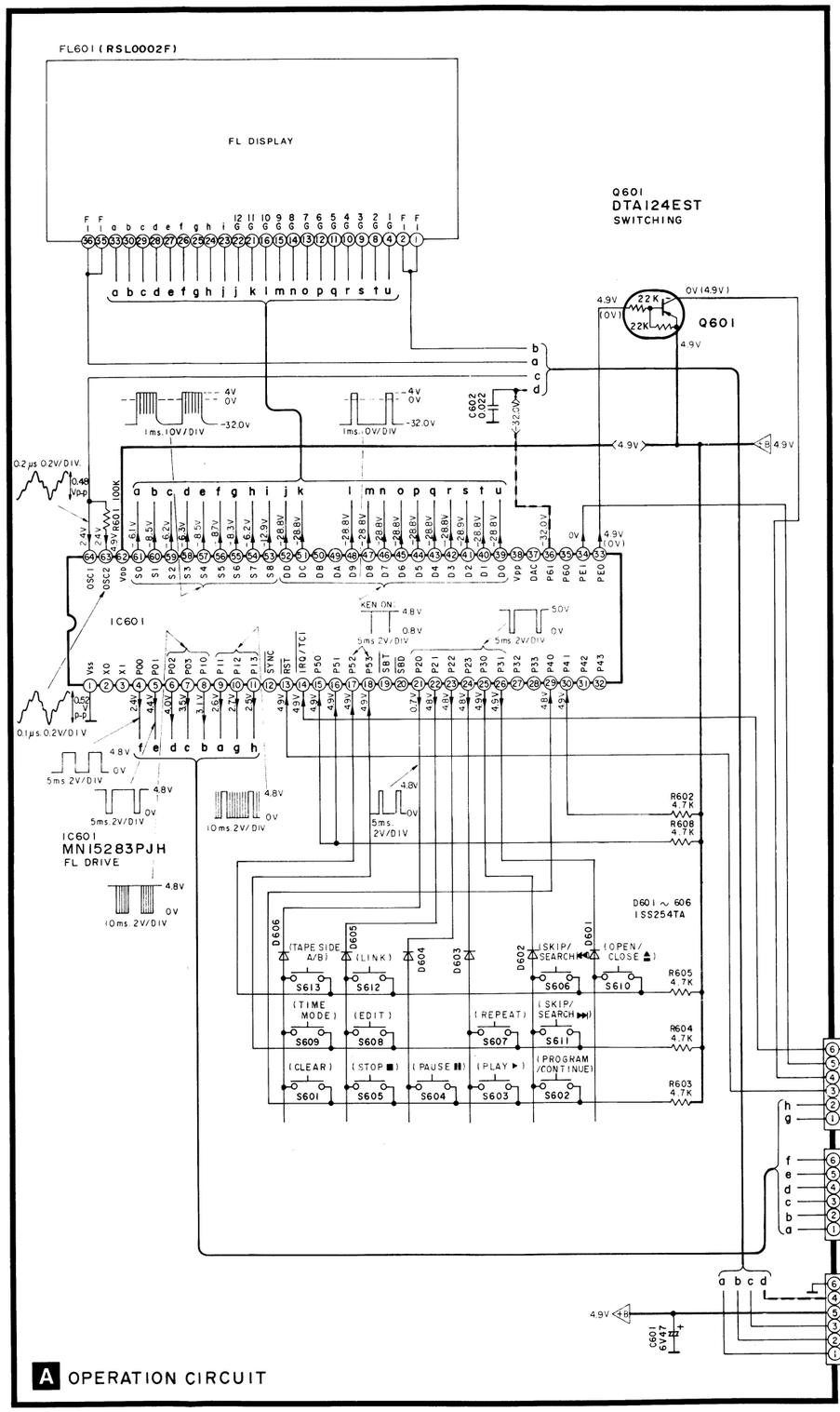
- Do not touch the pins of IC or LSI with fingers directly.



B SERVO CIRCUIT

Note: Original circuit uses AN8377 for IC103 while the new circuit uses AN8377N for IC103. (Refer to the table below for other changes.)

IC103 / Modifications	AN8377	AN8377N
IC104	LM2940T5M	Removed
Q102	Removed	2SB1240QR Added
C140	0.01μF	Removed
C145	6V 100μF	Removed
Jumper SJ101	Removed	Shorted

OPTICAL PICKUP

SPEED POSITION SENSOR RA1 5K

CN101

IC103 AN8377 FOCUS/TRACKING /TRAVERSE COIL DRIVE (BTL DRIVE)

IC104 LM2940T5M REGULATOR

Q102 2SB1240 SWITCHING

Q101 2SA1547 AUTO POWER CONTROL

IC102 AN8374S SERVO PROCESSOR

IC101 AN8373S SERVO AMP

TJ102 TJ101

Tracking offset adj.

Best eye adj.

Tracking balance adj.

Focus offset adj.

Tracking gain adj.

Focus gain adj.

DC SPINDLE MOTOR

CN103 CN102

To Servo Gain Adjuster

C MOTOR/ SWITCH CIRCUIT

LOADING MOTOR

S101 S102 (OPEN/CLOSE DETECTOR)

CN401 CN701

D D/A CON

Q401 2SD1862QRTV6 MOTOR DRIVE

Q402 2SB1240QRTV6 MOTOR DRIVE

IC402 BA4558FTI MOTOR DRIVE

Q301 DTC124EST SWITCHING

TJ302

Q403 2SD1862QRTV6 MOTOR DRIVE

TJ301

D402,403 MA4051MTA

Q404 2SB1240QRTV6 MOTOR DRIVE

CN402 CN414 CN413 CN412

IC13 BA4558FT RESET

Q405 DTC124EST RESET

17 18 19 20 21 22 23 24 25 26

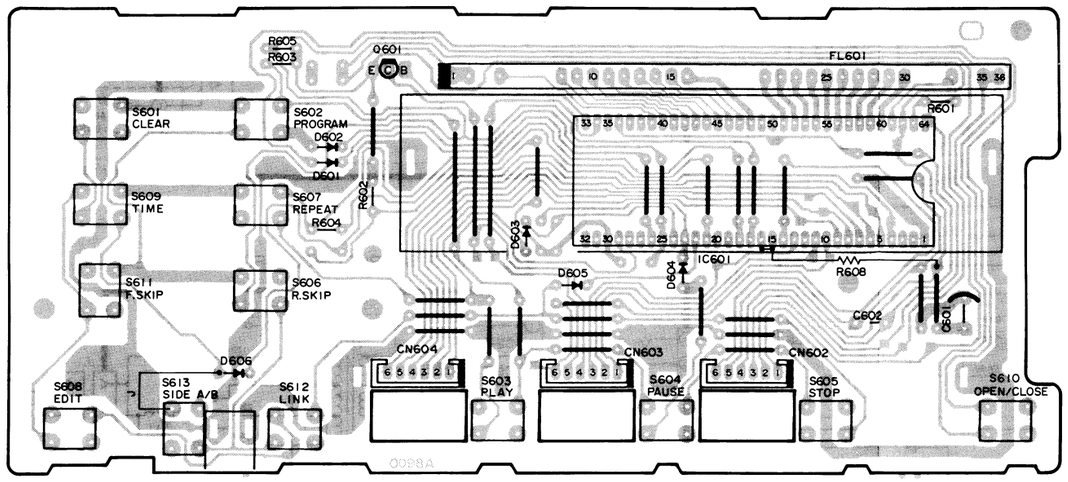
D D/A CONVERTER/AUDIO CIRCUIT

E POWER SUPPLY CIRCUIT

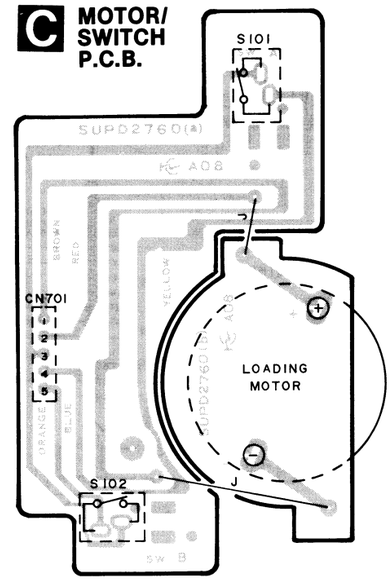
E POWER SUPPLY CIRCUIT FOR [GC] AREA.

■ PRINTED CIRCUIT BOARDS

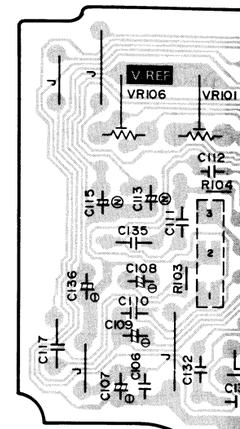
A OPERATION P.C.B.



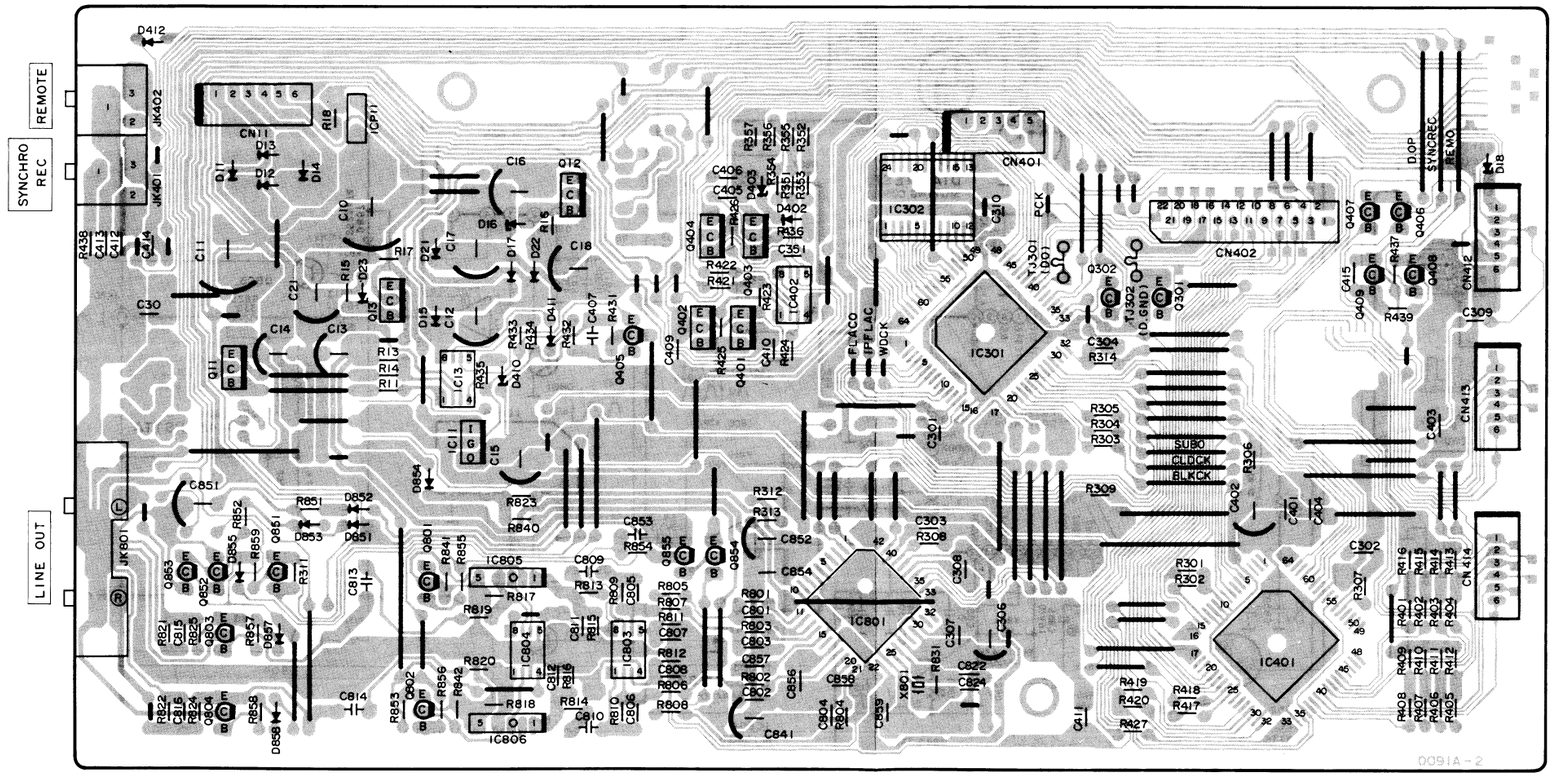
C MOTOR/ SWITCH P.C.B.



B SERVO P.C.B.

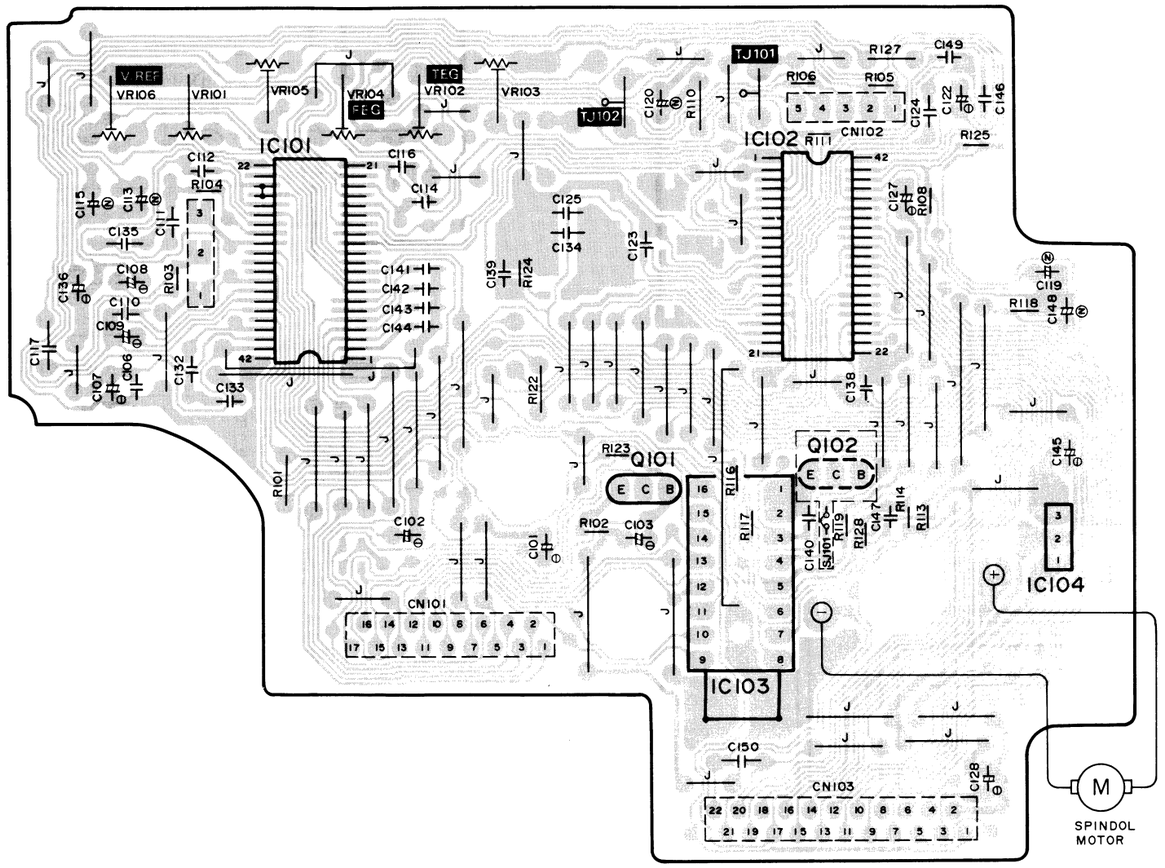


D D/A CONVERTER/AUDIO P.C.B.



Note:

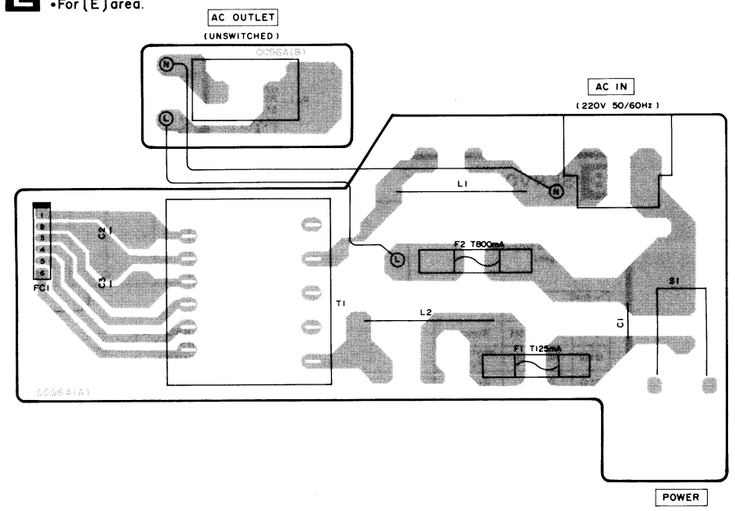
B SERVO P.C.B.



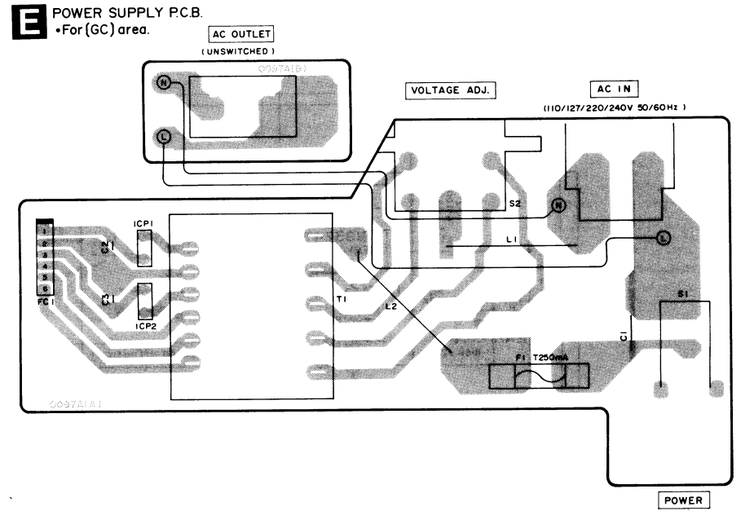
Note: Original circuit uses AN8377 for IC103 while the new circuit uses AN8377N for IC103. (Refer to the table below for other changes.)

IC103 / Modifications	AN8377	AN8377N
IC104	LM2940T5M	Removed
Q102	Not used	2SB1240QR Added
C140	0.01µF	Removed
C145	6V 100µF	Removed
Jumper SJ101	Not used	Shorted

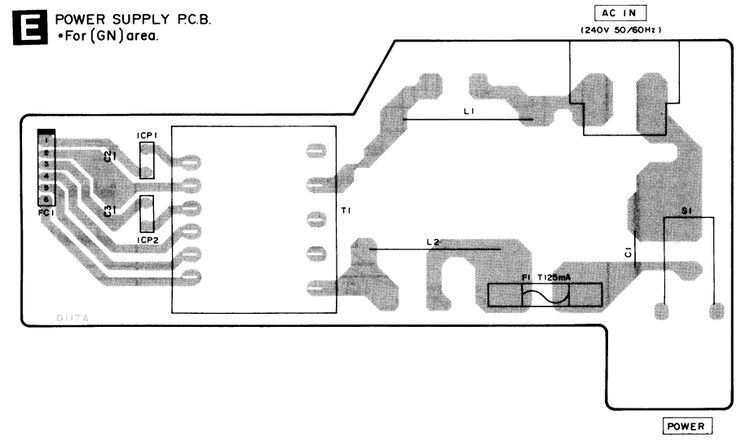
E POWER SUPPLY P.C.B.
•For (E) area.



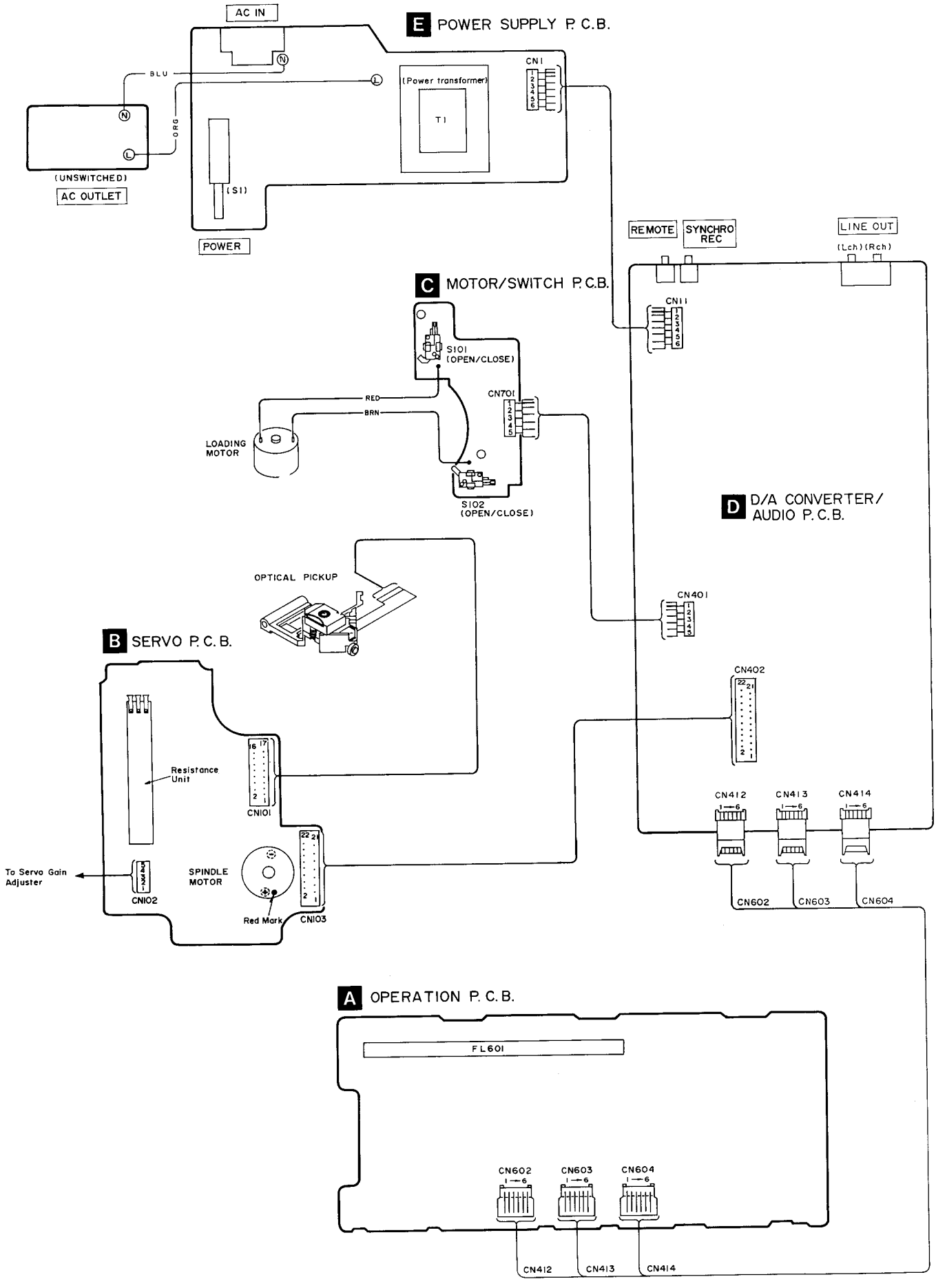
E POWER SUPPLY P.C.B.
•For (GC) area.



E POWER SUPPLY P.C.B.
•For (GN) area.



■ WIRING CONNECTION DIAGRAM

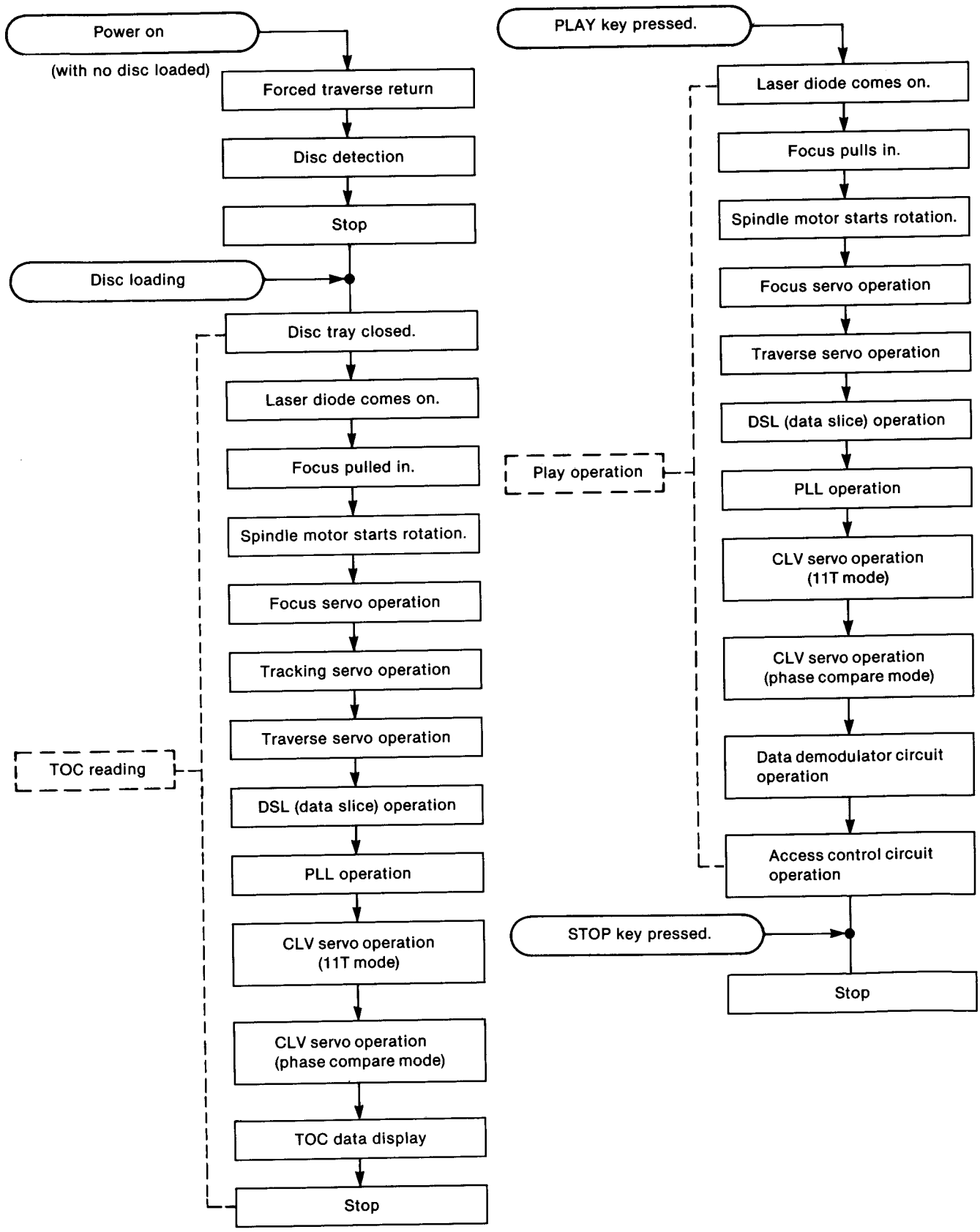


D

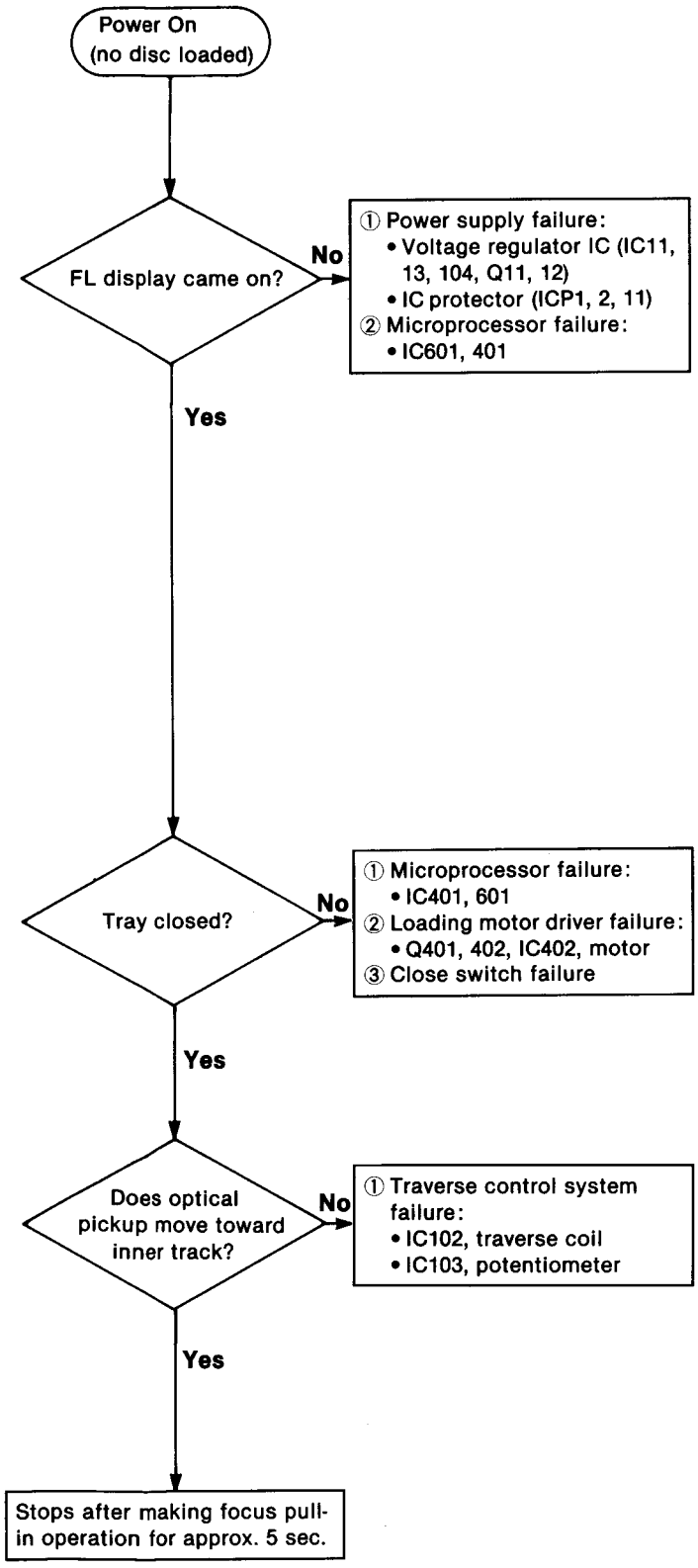
■ TROUBLESHOOTING GUIDE

SL-PJ26 Operation Sequence Check Sheet

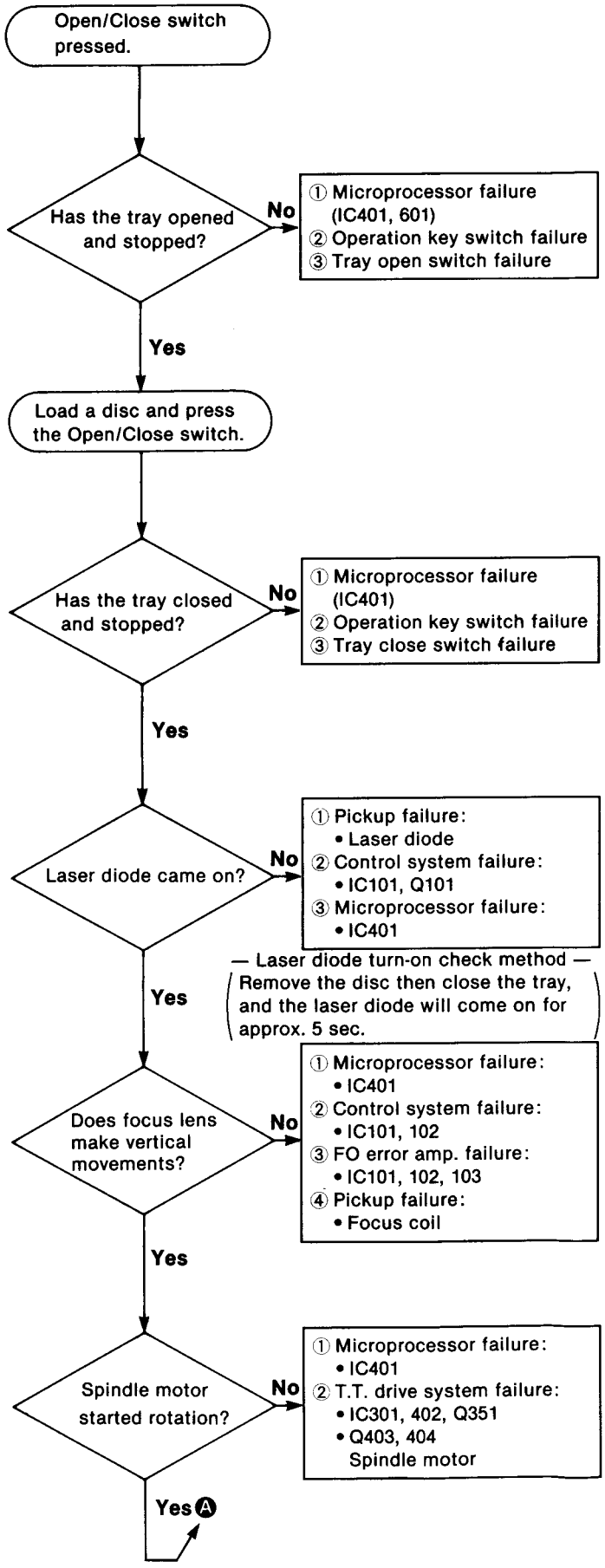
Play Operation Sequence

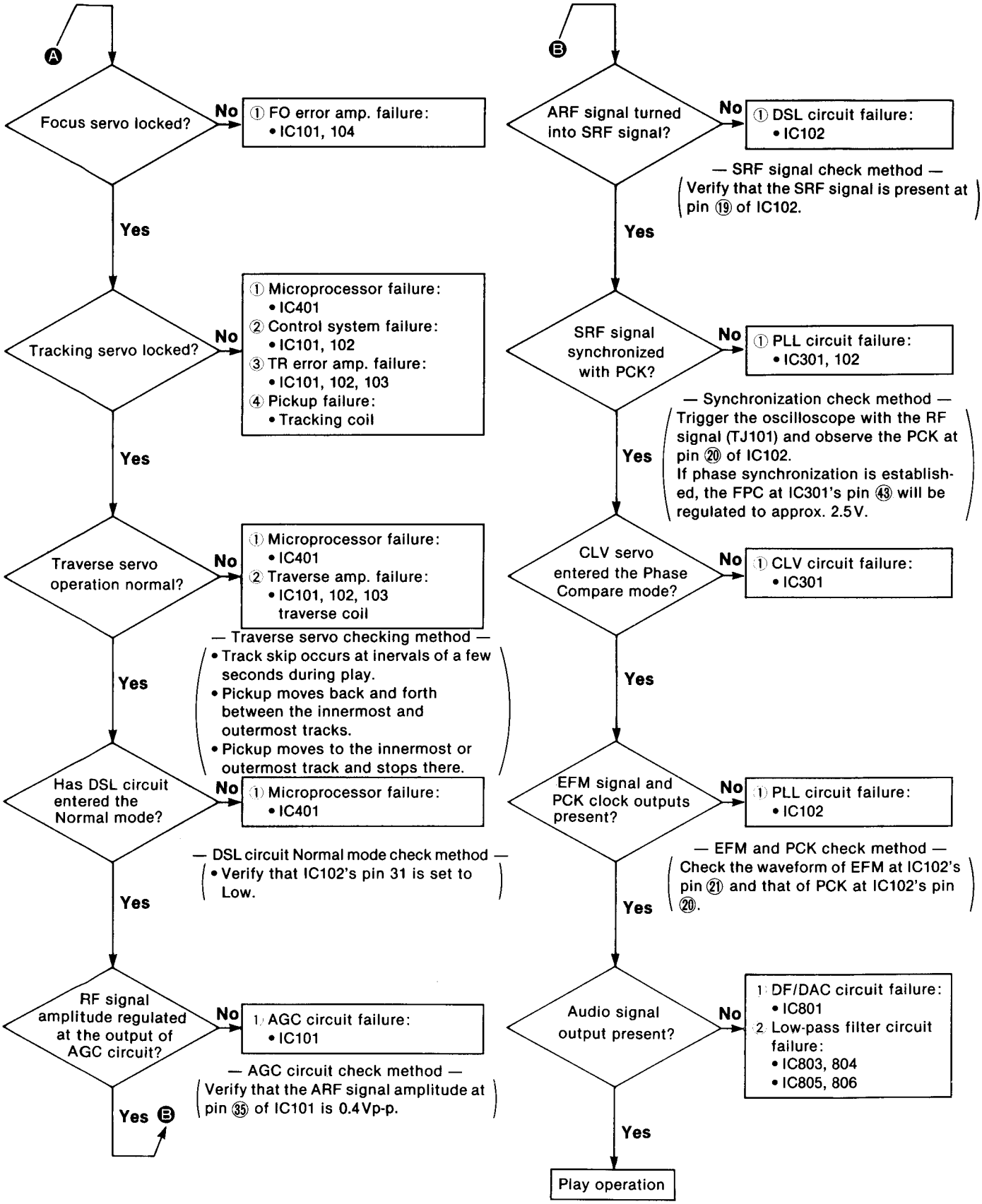


(Operation Sequence Just After Power On)



(TOC Read Operation-PLAY Operation)




Ⓐ
Focus servo locked?
No
① FO error amp. failure:
• IC101, 104
Yes
Tracking servo locked?
No
① Microprocessor failure:
• IC401
② Control system failure:
• IC101, 102
③ TR error amp. failure:
• IC101, 102, 103
④ Pickup failure:
• Tracking coil
Yes
Traverse servo operation normal?
No
① Microprocessor failure:
• IC401
② Traverse amp. failure:
• IC101, 102, 103
traverse coil
— Traverse servo checking method —
• Track skip occurs at inervals of a few seconds during play.
• Pickup moves back and forth between the innermost and outermost tracks.
• Pickup moves to the innermost or outermost track and stops there.
Yes
Has DSL circuit entered the Normal mode?
No
① Microprocessor failure:
• IC401
— DSL circuit Normal mode check method —
• Verify that IC102's pin 31 is set to Low.
Yes
RF signal amplitude regulated at the output of AGC circuit?
No
1. AGC circuit failure:
• IC101
— AGC circuit check method —
Verify that the ARF signal amplitude at pin ㉟ of IC101 is 0.4Vp-p.
Yes Ⓑ
Ⓑ
ARF signal turned into SRF signal?
No
① DSL circuit failure:
• IC102
— SRF signal check method —
Verify that the SRF signal is present at pin ⑲ of IC102.
Yes
SRF signal synchronized with PCK?
No
① PLL circuit failure:
• IC301, 102
— Synchronization check method —
Trigger the oscilloscope with the RF signal (TJ101) and observe the PCK at pin ⑳ of IC102.
If phase synchronization is established, the FPC at IC301's pin ㊸ will be regulated to approx. 2.5V.
Yes
CLV servo entered the Phase Compare mode?
No
① CLV circuit failure:
• IC301
Yes
EFM signal and PCK clock outputs present?
No
① PLL circuit failure:
• IC102
— EFM and PCK check method —
Check the waveform of EFM at IC102's pin ㉑ and that of PCK at IC102's pin ⑳.
Yes
Audio signal output present?
No
1. DF/DAC circuit failure:
• IC801
2. Low-pass filter circuit failure:
• IC803, 804
• IC805, 806
Yes
Play operation

D

■ RESISTORS & CAPACITORS

Notes : • Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
• Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System For Resistors

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Numbering System For Capacitors

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Unique
ECEA	50	M	330	
Type	Voltage (50V)	Characteristics	Value (33μF)	

● Capacity values are in microfarads (μF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
● Resistance values are in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Resistor Type		Wattage		Tolerance
ERD	: Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG	: Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ	: Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX	: Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L	: Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K	: Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC	: Solid	6G : 1/10W	8G : 1/8W	
ERF	: Incombustible Box-Shaped			
ERM	: Wire-Wound			
RRJ	: Chip Resistor			
ERJ	: Chip Resistor			

Capacitor Type		Voltage		Tolerance
ECE	: Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD	: Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD	: Ceramic Capacitor	1H : 50V	1V : 35V	Z : +80 % −20
ECQM	: Polyester	50 : 50V	05 : 50V	
ECQP	: Polypropylene	2H : 500V	2A : 100V	J : ±5%
ECG	: Ceramic	1 : 100V	1J : 63V	G : ±2%
ECEA N	: Non Polar Electrolytic	KC : 400V AC		F : ±1%
QCU	: Ceramic (Chip Type)	KC : 125V AC (UL)		C : ±0.25pF
ECUX	: Ceramic (Chip Type)			D : ±0.5pF
ECF	: Semiconductor			
EECW	: Liquid electrolyte double layer capacitor			

Ref. No.	Part No.	Part Name & Description	Remarks
		RESISTORS	
R11	ERDS2TJ101T	C. RESISTOR 1/4W 100	
R13, 14	ERDS2TJ103T	C. RESISTOR 1/4W 10K	
R15	ERDS2TJ331T	C. RESISTOR 1/4W 330	
R16	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R17	ERDS2TJ471T	C. RESISTOR 1/4W 470	
R18	ERDS2TJ120T	C. RESISTOR 1/4W 12	
R301~306	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R307	ERDS2TJ104T	C. RESISTOR 1/4W 100K	
R308	ERDS2TJ561T	C. RESISTOR 1/4W 560	
R309	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R311	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R312, 13	ERDS2TJ100T	C. RESISTOR 1/4W 10	
R314	ERDS2TJ182T	C. RESISTOR 1/4W 1.8K	
R351	ERDS2TJ103T	C. RESISTOR 1/4W 10K	
R352	ERDS2TJ154T	C. RESISTOR 1/4W 150K	
R353	ERDS2TJ123T	C. RESISTOR 1/4W 12K	
R354	ERDS2TJ154T	C. RESISTOR 1/4W 150K	
R355, 356	ERDS2TJ333T	C. RESISTOR 1/4W 33K	
R357	ERD25FVJ8R2T	C. RESISTOR 1/4W 8.2	
R401~408	ERDS2TJ221T	C. RESISTOR 1/4W 220	
R409~420	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R421, 422	ERDS2TJ913T	C. RESISTOR 1/4W 91K	

Ref. No.	Part No.	Part Name & Description	Remarks
R423, 424	ERDS2TJ124T	C. RESISTOR 1/4W 120K	
R425, 426	ERDS2TJ101T	C. RESISTOR 1/4W 100	
R427	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R431	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R432	ERDS2TJ101T	C. RESISTOR 1/4W 100	
R433	ERDS2TJ153T	C. RESISTOR 1/4W 15K	
R434	ERDS2TJ393T	C. RESISTOR 1/4W 39K	
R435	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
R436	ERDS2TJ150T	C. RESISTOR 1/4W 15	
R437	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R438	ERDS2TJ100T	C. RESISTOR 1/4W 10	
R439	ERDS2TJ683T	C. RESISTOR 1/4W 68K	
R601	ERDS2TJ104T	C. RESISTOR 1/4W 100K	
R602~605	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R608	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R801~804	ERDS2TJ103T	C. RESISTOR 1/4W 10K	
R805~808	ERDS2TJ273T	C. RESISTOR 1/4W 27K	
R809~812	ERDS2TJ473T	C. RESISTOR 1/4W 47K	
R813, 814	ERDS2TJ221T	C. RESISTOR 1/4W 220	
R815, 816	ERDS2TJ474T	C. RESISTOR 1/4W 470K	
R817, 818	ERDS2TJ103T	C. RESISTOR 1/4W 10K	
R819, 820	ERDS2TJ471T	C. RESISTOR 1/4W 470	
R821, 822	ERDS2TJ473T	C. RESISTOR 1/4W 47K	
R823~825	ERDS2TJ331T	C. RESISTOR 1/4W 330	
R831	ERDS2TJ472T	C. RESISTOR 1/4W 4.7K	
R840	ERDS2TJ331T	C. RESISTOR 1/4W 330	
R841, 842	ERDS2TJ105T	C. RESISTOR 1/4W 1M	
R851	ERDS2TJ102T	C. RESISTOR 1/4W 1K	

D

Ref. No.	Part No.	Part Name & Description	Remarks
R852	ERDS2TJ471T	C. RESISTOR 1/4W 470	
R853	ERDS2TJ333T	C. RESISTOR 1/4W 33K	
R854	ERDS2TJ183T	C. RESISTOR 1/4W 18K	
R855~859	ERDS2TJ102T	C. RESISTOR 1/4W 1K	
		CAPACITORS	
C1	ECKDKC103PF2	. CAPACITOR 400V 0.01U	⚠
C2, C3	ECKM1H103ZFX	. CAPACITOR 50V 0.01U	⚠
C10	ECEA1CU332E	E. CAPACITOR 16V 3300U	
C11	ECEA1CU222E	E. CAPACITOR 16V 2200U	
C12	ECEA1VU101B	E. CAPACITOR 35V 100U	⚠
C13, 14	ECEA1AK101B	E. CAPACITOR 10V 100U	
C15	ECEA0JK470B	E. CAPACITOR 6.3V 47U	
C16, 17	ECEA1CU331B	E. CAPACITOR 16V 330U	
C18	ECEA1VU101B	E. CAPACITOR 35V 100U	
C21	ECEA1CU221B	E. CAPACITOR 16V 220U	
C30	ECFR1E104ZF5	S. CAPACITOR 25V 0.1U	
C301	ECFR1E104ZF5	S. CAPACITOR 25V 0.1U	
C302	ECBT1C103NS5	. CAPACITOR 16V 0.01U	
C303	ECBT1H6R8K5	. CAPACITOR 50V 6.8P	
C304	ECBT1H220J5	. CAPACITOR 50V 22P	
C306	ECEA0JK101B	E. CAPACITOR 6.3V 100U	
C307, 308	ECFR1E104ZF5	S. CAPACITOR 25V 0.1U	
C309	ECBT1C103NS5	. CAPACITOR 16V 0.01U	
C310	ECFR1E104ZF5	S. CAPACITOR 25V 0.1U	
C351	ECBT1H102KB5	. CAPACITOR 50V 0.001U	
C401	ECFR1E104ZF5	S. CAPACITOR 25V 0.1U	
C402	ECEA0JK470B	E. CAPACITOR 6.3V 47U	
C403, 404	ECFR1E104ZF5	S. CAPACITOR 25V 0.1U	
C405, 406	ECBT1H102KB5	. CAPACITOR 50V 0.001U	
C407	ECEA1HKN010B	E. CAPACITOR 50V 1U	
C409, 10	ECBT1H102KB5	. CAPACITOR 50V 0.001U	
C411	ECFR1E104ZF5	S. CAPACITOR 25V 0.1U	
C412~414	ECBT1C103NS5	. CAPACITOR 16V 0.01U	
C415	ECBT1H471KB5	. CAPACITOR 50V 470P	
C601	ECEA0JK470B	E. CAPACITOR 6.3V 47U	
C602	ECBT1E223ZF5	. CAPACITOR 25V 0.022U	
C801~804	ECBT1H680J5	. CAPACITOR 50V 68P	
C805~808	ECBT1H470J5	. CAPACITOR 50V 47P	
C809, 810	ECEA1EN3R3SB	E. CAPACITOR 25V 3.3U	
C811, 812	ECBT1H102KB5	. CAPACITOR 50V 0.001U	
C813, 814	ECEA1CN220SB	E. CAPACITOR 16V 22U	
C815, 816	ECBT1H102KB5	. CAPACITOR 50V 0.001U	
C822	ECBT1H5R6K5	. CAPACITOR 50V 5.6P	
C824	ECBT1H5R6K5	. CAPACITOR 50V 5.6P	
C841	ECEA0JU331B	E. CAPACITOR 6.3V 330U	
C851	ECEA0JU471B	E. CAPACITOR 6.3V 470U	
C852	ECEA0JU331B	E. CAPACITOR 6.3V 330U	
C853	ECEA1CKN100B	E. CAPACITOR 16V 10U	
C854	ECFR1E104ZF5	S. CAPACITOR 25V 0.1U	
C856~859	ECFR1E104ZF5	S. CAPACITOR 25V 0.1U	

Ref. No.	Part No.	Part Name & Description	Remarks
		RESISTORS <SERVO P.C.B>	
R101	ERDS2TJ471	C. RESISTOR 1/4 470	
R102	ERJ6GEYJ120V	C. RESISTOR 1/10 12	
R103	ERJ6GEYJ122	C. RESISTOR 1/10 1.2K	
R104	ERJ6GEYJ471	C. RESISTOR 1/10 470	
R105	RRJ6GCJ102TE	C. RESISTOR 1/6 1K	
R106	RRJ6GCJ102TE	C. RESISTOR 1/6 1K	
R108	ERJ6GEYJ224V	C. RESISTOR 1/10 220K	
R110	ERDS2TJ222	C. RESISTOR 1/4 2.2K	
R111	ERJ6GEYJ154V	C. RESISTOR 1/10 150K	
R113	ERJ6GEYJ472V	C. RESISTOR 1/10 4.7K	
R114	ERJ6GEYJ683V	C. RESISTOR 1/10 68K	
R116	ERJ6GEYJ332V	C. RESISTOR 1/10 3.3K	
R117	ERJ6GEYJ123	C. RESISTOR 1/10 12K	
R118	ERJ6GEYJ333V	C. RESISTOR 1/10 33K	
R119	RRJ6GCJ223TE	C. RESISTOR 1/6 22K	
R122	ERDS2TJ104	C. RESISTOR 1/4 100K	
R123	ERJ6GEYJ470V	C. RESISTOR 1/10 47	
R124	RRJ6GCJ103TE	C. RESISTOR 1/6 10K	
R125	RRJ6GCJ222TE	C. RESISTOR 1/6 2.2K	
R127	ERDS2TJ681	C. RESISTOR 1/4 680	
R128	RRJ6GCJ103TE	C. RESISTOR 1/6 10K	
		CAPACITORS <SERVO P.C.B>	
C101	ECEA1CKS220I	E. CAPACITOR 16V 22U	
C102	ECEA1HKS010I	E. CAPACITOR 50V 1U	
C103	ECEA1CKS220I	E. CAPACITOR 16V 22U	
C106	RCUV1E104ZF	E. CAPACITOR 25V 0.1U	
C107	ECEA0GKS101I	E. CAPACITOR 4V 100U	
C108	ECEA0JKS470I	E. CAPACITOR 6.3V 47U	
C109	ECEA1HKS010I	E. CAPACITOR 50V 1U	
C110	RCUV1H681KB	E. CAPACITOR 50V 680P	
C111	ECUV1C224KR	E. CAPACITOR 16V 0.22U	
C112	RCUV1H331KB	E. CAPACITOR 50V 330P	
C113	ECEA1HSN010I	E. CAPACITOR 50V 1U	
C114	RCUV1E333KB	E. CAPACITOR 25V 0.033U	
C115	ECEA1HSN010I	E. CAPACITOR 50V 1U	
C116	RCUV1E333KB	E. CAPACITOR 25V 0.033U	
C117	ECBT1H102KB5	E. CAPACITOR 50V 0.001U	
C119	ECEA1CKN4R7I	E. CAPACITOR 16V 4.7U	
C120	ECEA1CKN4R7I	E. CAPACITOR 16V 4.7U	
C122	ECEA0JKS220I	E. CAPACITOR 6.3V 22U	
C123	RCUV1E104ZF	E. CAPACITOR 25V 0.1U	
C124	ECUV1E823KB	E. CAPACITOR 25V 0.082U	
C125	ECUV1C224KR	E. CAPACITOR 16V 0.22U	
C127	ECEA0JKF101I	E. CAPACITOR 6.3V 100U	
C128	ECEA1CKA101I	E. CAPACITOR 16V 100U	
C132	ECUV1E104KB	E. CAPACITOR 25V 0.1U	
C133	RCUV1H330KC	E. CAPACITOR 50V 33P	

D

Ref. No.	Part No.	Part Name & Description	Remarks
C134	ECUV1C224KR	E. CAPACITOR 16V 0.22U	
C135	ECUV1C224KR	E. CAPACITOR 16V 0.22U	
C136	ECEA0GKS101I	E. CAPACITOR 4V 100U	
C138	RCUV1E104ZF	E. CAPACITOR 25V 0.1U	
C139	RCUV1H470KC	E. CAPACITOR 50V 47P	
C140	RCUV1E103KB	E. CAPACITOR 25V 0.01U	
C141	RCUV1H470KC	E. CAPACITOR 50V 47P	
C142	RCUV1H470KC	E. CAPACITOR 50V 47P	
C143	RCUV1H470KC	E. CAPACITOR 50V 47P	

Ref. No.	Part No.	Part Name & Description	Remarks
C144	RCUV1H470KC	E. CAPACITOR 50V 47P	
C145	ECEA0JKF101I	E. CAPACITOR 6.3V 100U	
C146	RCUV1H181KC	E. CAPACITOR 50V 180P	
C147	RCUV1H472KB	E. CAPACITOR 50V0.0047U	
C148	ECEA1ESN4R7I	E. CAPACITOR 25V 4.7U	
C149	RCUV1E104ZF	E. CAPACITOR 25V 0.1U	
C150	RCUV1E103KB	E. CAPACITOR 25V 0.01U	
C420	ECKW1H103KB5	E. CAPACITOR 50V 0.1U	

D

■ REPLACEMENT PARTS LIST

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Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUITS	
IC11	LM2940T5M	IC, REGULATOR	
IC13	BA4558FT1	IC, RESET	
IC301	MN6625	IC, DGITAL SIGNAL PROCESSING	
IC302	CXK5816M	IC, 16K RAM	
IC401	MN1554PEZ-1	IC, SYSTEM CONTROL	
IC402	BA4558FTI	IC, MOTOR DRIVE	
IC601	MN15283PJH	IC, FL DRIVE	
IC801	MN6471	IC, D.F. & D/A CONVERTER	
IC803	LM833M63	IC, COMPARATOR	
IC804	NJM4560M	IC, BUFFER AMP	
IC805, 06	H8DN2175M	IC, L.P.F.	
ICP1, 2	SRUF38	IC, PROTECTOR	<GN, GC> ⚠
ICP11	SRUN15T	IC, PROTECTOR	⚠
		TRANSISTORS	
Q11	2SB1240QRTV6	TRANSISTOR	
Q12	2SB1238QSTV6	TRANSISTOR	
Q13	2SD1862QRTV6	TRANSISTOR	
Q301	DTC124EST	TRANSISTOR	
Q302	DTA124EST	TRANSISTOR	
Q401	2SD1862QRTV6	TRANSISTOR	
Q402	2SB1240QRTV6	TRANSISTOR	
Q403	2SD1862QRTV6	TRANSISTOR	
Q404	2SB1240QRTV6	TRANSISTOR	
Q405~407	DTC124EST	TRANSISTOR	
Q408	DTA114YST	TRANSISTOR	
Q409	DTC124EST	TRANSISTOR	
Q601	DTA124EST	TRANSISTOR	
Q801, 802	2SC3311QRSTA	TRANSISTOR	
Q803, 804	2SD1450RSTTA	TRANSISTOR	
Q851	DTA124EST	TRANSISTOR	
Q852	DTC124EST	TRANSISTOR	
Q853	DTA114EST	TRANSISTOR	
Q854	DTC124EST	TRANSISTOR	
Q855	DTA124EST	TRANSISTOR	
		DIODES	
D11-15	SVD1SR35200V	DIODE	⚠
D16	MA4330MTA	DIODE	
D17	SVD1SR35200V	DIODE	⚠
D18	MA4082HTA	DIODE	
D21, 22	SVD1SR35200V	DIODE	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
D23	MA4062HTA	DIODE	
D402, 03	MA4051MTA	DIODE	
D410	MA4033MTA	DIODE	
D411, 12	1SS254TA	DIODE	
D601~606	1SS254TA	DIODE	
D851~855	1SS254TA	DIODE	
D857, 858	1SS254TA	DIODE	
		COILS	
L1, L2	SLQX400-D	COIL	⚠
		TRANSFORMERS	
T1	SLTD5K097SE	POWER TRANSFORMER	<E> ⚠
T1	SLTD5K098SG	POWER TRANSFORMER	<GN> ⚠
T1	SLTD5K099SX	POWER TRANSFORMER	<GC> ⚠
		OSCILLATORS	
X801	SVQ49U338S	OSCILLATOR	
		DISPLAY TUBE	
FL601	RSL0002F	DISPLAY TUBE	
		FUSES	
F1	XBA2C012TB0	125V, T125mA	<E, GN> ⚠
F1	XBA2C025TB0	125V, T250mA	<GC> ⚠
F2	XBA2C08TB0	125V, T800mA	<E> ⚠
		SWITCHES	
S1	ESB8249V	SW, POWER	⚠
S2	SSR187-1	SW, VOLTAGE SELECTOR	<GC> ⚠
S101	SSPD17	SW, LODING DET.	
S102	SSPD18	SW, LODING DET.	
S601	EVQQB005R	SW, CLEAR	
S602	EVQQB005R	SW, PROGRAM	
S603	EVQQB005R	SW, PLAY	
S604	EVQQB005R	SW, PAUSE	
S605	EVQQB005R	SW, STOP	
S606	EVQQB005R	SW, R. SKIP/SEARCH	
S607	EVQQB005R	SW, REPEAT	
S608	EVQQB005R	SW, EDIT/TAPE LENGTH	
S609	EVQQB005R	SW, TIME MODE	

Ref. No.	Part No.	Part Name & Description	Remarks
S610	EVQQB005R	SW, OPEN/CLOSE	
S611	EVQQB005R	SW, F. SKIP/SEARCH	
S612	EVQQB005R	SW, LINK	
S613	EVQQB005R	SW, TAPE SIDE A/B	
		CONNECTOR AND SOCKET	
CN11	SJT30643-VM	CONNECTOR	
CN401	SJT30543-VM	CONNECTOR	
CN402	SJSD2221M	SOCKET	
CN412~414	SJS50680WLM	SOCKET	
CN602~604	SJT30647WL	CONNECTOR	
		CABLE	
FC1	SIKD552062	FLAT CABLE	
		JACKS	
JK401	SJJ130-1M	SYNCHRO	
JK402	SJJ130-2M	REMOTE	
JK801	SJFD4M	LINE OUT	

Ref. No.	Part No.	Part Name & Description	Remarks
		<SERVO P. C. B>	
		INTEGRATED CIRCUITS	
IC101	AN8373S	IC, SERVO AMP	
IC102	AN8374S	IC, SERVO PROCESSOR	
IC103	AN8377	IC, B. T. L DRIVE	
IC104	LM2940T5M	IC, RESET	
		TRANSISTORS <SERVO P. C. B>	
Q101	2SA1547QSTV2	TRANSISTOR	
		<SERVO P. C. B>	
		VARIABLE RESISTORS	
VR101	EVND3AA00B14	V. R, BEST EYE ADJ.	
VR102	EVND3AA00B14	V. R, TRACKING GAIN ADJ.	
VR103	EVND3AA00B14	V. R, TRACKING OFFSET ADJ.	
VR104	EVND3AA00B14	V. R, FOCUS GAIN ADJ.	
VR105	EVND3AA00B14	V. R, FOCUS OFFSET ADJ.	
VR106	EVND3AA00B24	V. R, TRACKING BALANCE ADJ.	
		<SERVO P. C. B>	
		MAGNET RESISTOR ELEMENTS	
RA1	EWS7M0A00Q53	RESISTANCE UNIT	

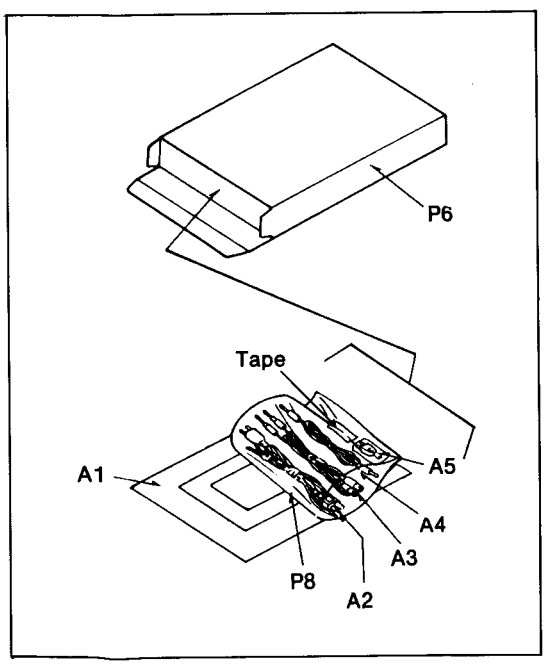
D

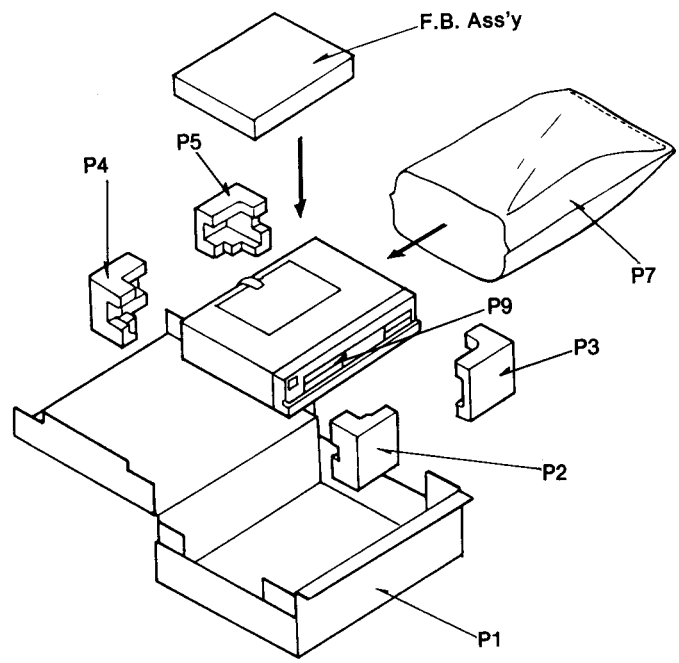
Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RKM0015-K	CABINET	
2	SJS9236	AC INLET	<E, GC> ⚠
2	SJSD16	AC INLET	<GN> ⚠
3	SJS9232B	AC OUTLET	<GC> ⚠
3	SJS9333B	AC OUTLET	<E> ⚠
4	SJT390	FUSE HOLDER	
5	RGK0057	ORNAMENT	
6	RGR0011A-A	REAR PANEL	<E>
6	RGR0011B-B	REAR PANEL	<GC>
6	RGR0011C-C	REAR PANEL	<GN>
7	RMK0054	CHASSIS ASS'Y	
7-1	RKA0011	FOOT	
8	SUSD144	SPRING	
9	RMR0084	ROD	
10	SBC666-1	BUTTON, POWER	
11	SHE185-2	BRACKET	
12	SJS9232A	AC OUTLET COVER	<GC>
12	SJS9333A	AC OUTLET COVER	<E>
13	RGP0054	FRONT PANEL ASS'Y	
13-1	RKW0013	ORNAMENT	
14	RGU0057	BUTTON, MAIN	
15	RGU0062	BUTTON, SKIP	
16	RGU0063	BUTTON, EDIT	
17	SUWD139	FL HOLDER	

Ref. No.	Part No.	Part Name & Description	Remarks
N1	RHD30003	SCREW	
N2	XTBS3+8JFZ1	SCREW	
N3	XTB3+16JFZ	SCREW	
N4	XTB3+8F	SCREW	
N5	XTB3+8JFZ	SCREW	
		ACCESSORIES	
A1	RQT0202-Z	INSTRUCTION MANUAL	<E>
A1	RQT0107G	INSTRUCTION MANUAL	<GC>
A1	RQT0107L	INSTRUCTION MANUAL	<GN>
A2	RJA0004	POWER CORD	<GC> ⚠
A2	SFDAC05E03	POWER CORD	<E> ⚠
A2	SJA173	POWER CORD	<GN> ⚠
A3	SJP2249-3	OUTPUT CORD	
A4	SJP2257T	SYNCHRO REC CORD	
A5	SJP9215	AC PLUG ADAPTOR	<GC> ⚠
		PACKING MATERIAL	
P1	RPG0112	CARTON BOX	
P2	RPN0101A	PAD	
P3	RPN0101B	PAD	
P4	RPN0101C	PAD	
P5	RPN0101D	PAD	
P6	SPSD152	ACCESSORY BOX	
P7	XZB60X60A01	PROTECTION BAG (UNIT)	
P8	XZB23X20C03	PROTECTION BAG (CORD)	
P9	RPH0026	PROTECTION SHEET	

■ PACKING

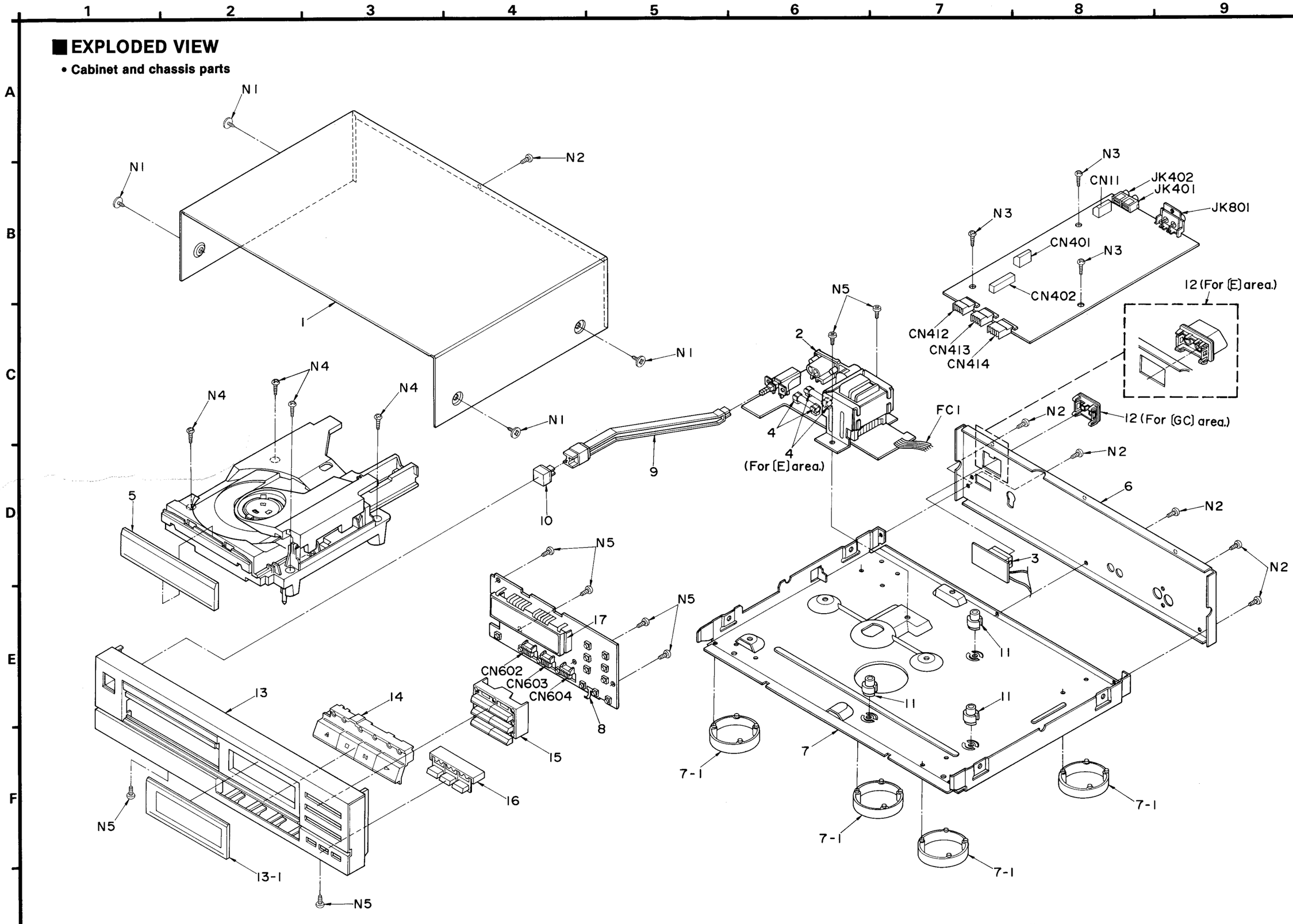
• F.B. Ass'y





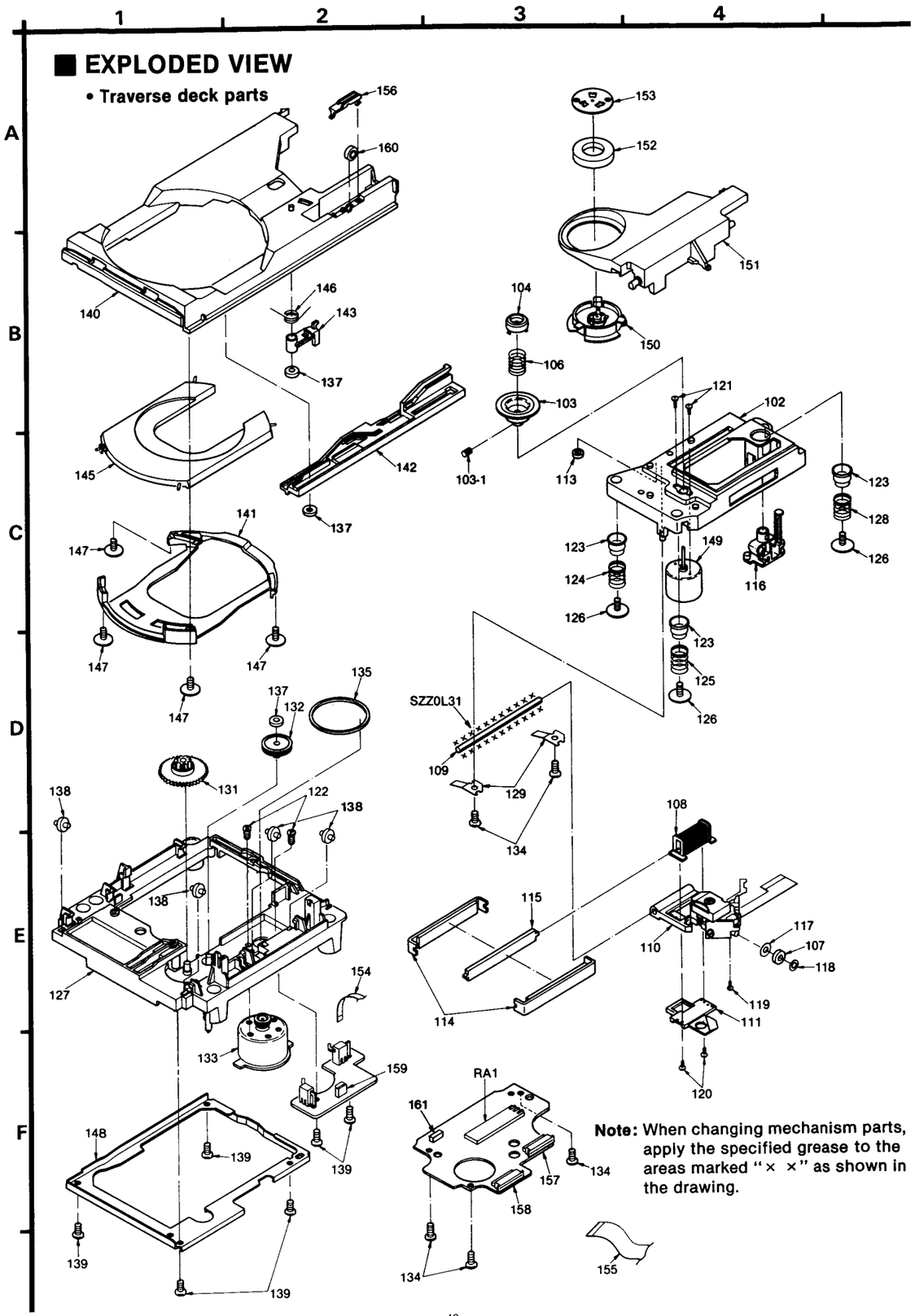
■ EXPLODED VIEW

• **Cabinet and chassis parts**



■ EXPLODED VIEW

• Traverse deck parts



Note: When changing mechanism parts, apply the specified grease to the areas marked "× ×" as shown in the drawing.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET<TRAVERSE DECK>	
102	SISD22-1	TRAVERSE BASE	
103	SDOD28-1E	TURNTABLE	
103-1	XXE26D5	SCREW	
104	SDOD29-2	RING	
106	SRQA010N04	SPRING	
107	SORD37	ROLLER	
108	SORD38-E	COIL	
109	SUXD123-1	GUIDE SHAFT	
110	SOAD70A	OPTICAL PICKUP	
111	SHRD176-E	COIL HOLDER	
113	SHGD148	STOPPER	
114	SOYD21-E	YOKE	
115	SOYD22	YOKE	
116	SHRD177-1	LOCK UNIT	
117	SHWD33	WASHER	
118	SHWD34	WASHER	
119	SNSD31	SCREW	
120	XTN2+5G	SCREW	
121	XYN2+C8	SCREW	
122	XYN26+J6	SCREW	
123	SHGD153-1	CUSHION RUBBER	
124	SUSD136-1	SPRING	
125	SUSD137-1	SPRING	
126	SNSD33	SCREW	
127	SIWLP555-KN	LOADING BASE	
128	SUSD145-1	SPRING	

Ref. No.	Part No.	Part Name & Description	Remarks
129	SUWD112	GUIDE SHAFT HOLDER	
131	SDGD58	MAIN GEAR	
132	SDGD59-2	GEAR	
133	SIRD94-E	LOADING MOTOR	
134	XTB3+10G	SCREW	
135	SMBD7	BELT	
137	SFUMZ15R61	WASHER	
138	SDRD14	ROLLER	
139	XTB3+8G	SCREW	
140	SIRD97-2E	HOLDER	
141	SIRD107-1	TRAY BASE	
142	SIRD40-2	RACK GEAR	
143	SIRD96	LOCK LEVER	
145	SIRD98-2	DISC TRAY	
146	SUSD83	SPRING	
147	SNSD36	SCREW	
148	SIWD105	BRACKET	
149	SJGDRF310T-2	SPINDLE MOTOR	
150	SIRD51-1	HOLDER	
151	SIRD42-3	LEAD WIRE CLAMP	
152	SOMD4	MAGNET	
153	SOYD2	YOKE	
154	SIKD150051	FLAT CABLE	
155	SIKD150221-1	FLAT CABLE	
156	SHRD150	ROLLER HOLDER	
157	SJSD1722M	SOCKET(17P)	
158	SJSD2222M	SOCKET(22P)	
159	SJT30543-V	CONNECTOR(5P)	
160	SDRD12	ROLLER	
161	EMCSD552MP	CONNECTOR(5P)	

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